



AN Expert Editor Manual

Important Notices

The AN Expert Editor provides an easy, intuitive way to edit and create your own original AN voices for the PLG150-AN Plug-in Board.

Do not use any of the panel controls on an external synthesizer while editing the AN voices with the AN Expert Editor, since this may inadvertently change the settings of the PLG150-AN.

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About this manual

- The screens shown in this manual are almost all on Windows systems. Although some screens may differ for Macintosh systems, the basic operations are the same.
- Keyboard shortcuts referred in this manual are effective for only Windows system.

For Windows users

When you use the AN Expert Editor, set "Font Size" to "Small Fonts" at the "Control Panel | Display | (Settings | Advanced)" page. If "Large Fonts" is selected, messages in some dialog boxes may not be displayed properly.

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YAMAHA CORPORATION

About the AN Expert Editor

The AN Expert Editor is providing an exceptionally simple, convenient and intuitive way to edit and control all of the [AN parameters](#) on the PLG150-AN Plug-in Board. Virtual “knobs,” “buttons” and a special “LCD display” let you change parameters just as if you were operating an actual synthesizer control panel!

The AN Expert Editor lets you save your edits as an original [User voice](#) and store up to 128 User voices and User Step Sequencer patterns. Naturally, you can save the data to floppy disks or your hard disk drive as [AN Expert Files](#). The AN Expert Editor also features a convenient, easy-to-use [AN Librarian](#) that lets you organize your User voices.

Editing on the AN Expert Editor is done from the [Main Window](#).

For general instructions and explanations on how to use the AN Expert Editor, see [Setting and Changing Parameter Values](#) and [Toolbar](#). For information on specific, commonly used operations, see [Operations](#).



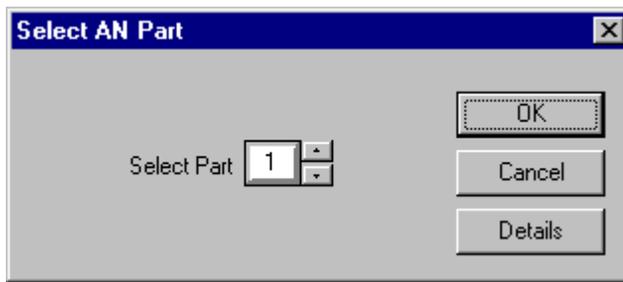
Assigning the PLG150-AN to a Part

NOTE

- The following information pertains only to the Plug-in Editor.

In order to play and edit the PLG150-AN, the AN voice must be assigned to a Part on the tone generator/sound card. This can be done from two separate menus on the AN Expert Editor: the initial [Select AN Part Pop-up Menu](#) (which appears automatically whenever you start the AN Expert Editor) and [AN Expert Editor Setup](#).

■ Select AN Part Pop-up Menu.....



NOTE

- [Cancel] button may not be available depending on the editor you use.

1 Select the desired Part.

The Select AN Part pop-up menu appears when you first call up the AN Expert Editor. Select the desired Part from the Part combo box.

NOTE

- When using a Modular Synthesis Plug-in System “mother” device, the Part assignment depends on which mode is used — Voice or Performance — and also on whether the PLG150-AN board is installed/assigned to PLG1 or PLG2, as described below.

When using the Voice mode:

Set the Part to “1” (no matter what the PLG1 or PLG2 assignment is).

When using the Performance (Multi) mode:

If the PLG150-AN board is assigned to PLG1, set the Part to “16.”

If the PLG150-AN board is assigned to PLG2, set the Part to “15.”

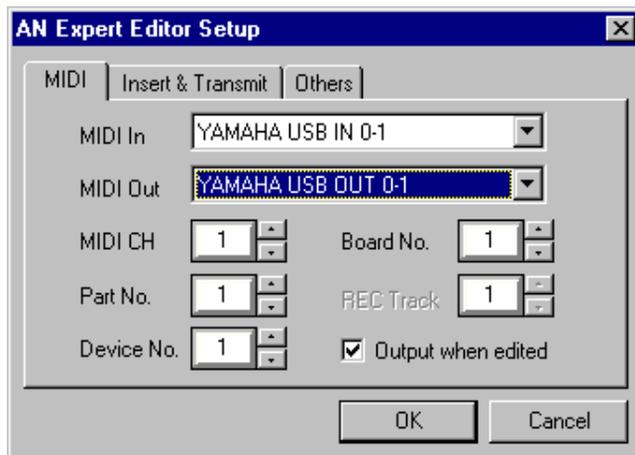
2 Click “OK.”

NOTE

- Click “Details” to call up the [AN Expert Editor Setup](#) menu for making more detailed settings.

■ Using the AN Expert Editor Setup

Even after you've set the AN Part from the pop-up menu, you can change the setting during an editing session from the AN Expert Editor Setup dialog box.



1 Select “AN Expert Editor Setup.”

While the AN Expert Editor is active and selected, click “Setup” on the menu bar, then select “AN Expert Editor Setup.” (Keyboard shortcut: [Alt], [U], [U], then [ENTER].)

NOTE

- “AN Expert Editor Setup” can also be selected from the [toolbar](#).

2 Select the desired Part.

Do this from the Part No. combo box in the MIDI tab. Make other settings if necessary. (See [AN Expert Editor Setup](#).)

3 Click “OK.”

Selecting an AN Voice

Selecting an AN voice is the important first step in [editing](#). You can select a voice from Preset 1, Preset 2, or User banks (each of which contains 128 voices). Once you've edited a voice you can [store it to the User bank](#) as your original voice and save it to a floppy disk/hard disk drive with other voices as an [AN Expert File](#).

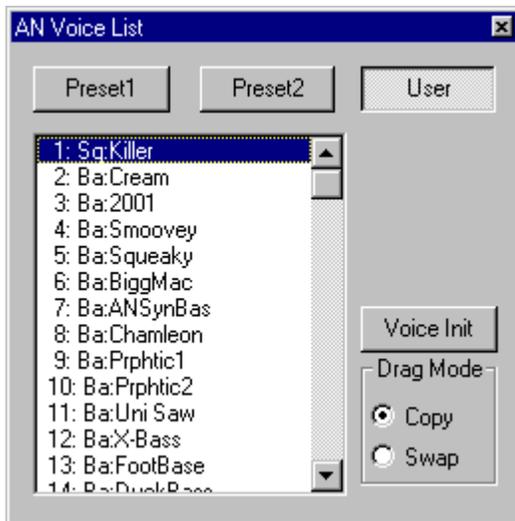
AN voices can be selected from either the Edit Panel window or the main control panel window.

NOTE

- Make sure to store your edits to a voice before selecting another voice. If you've edited the AN Expert Editor parameters and then select a different voice, all your edited parameters will be initialized to the default values of the newly selected voice.

1 Select "AN Voice List."

Click the VOICE button at the bottom right of the main control panel.



You can also quickly call up this dialog box by right-clicking any inactive part of the window (on the Macintosh, click while holding the CONTROL key) and clicking "AN Voice List" in the pop-up menu. Or, you can click "Edit" on the menu bar, then select "AN Voice List." (Keyboard shortcut: [Alt], [E], [V].)

2 Select the desired voice.

Click on the desired voice, then close the dialog box (click the close button) to return to the main control panel window. (You can also do this by clicking anywhere on the main control panel.)

Editing an AN Voice

1 Select the desired voice.

Refer to [Selecting an AN Voice](#).

2 Edit the voice parameters as desired from the main control panel.

The main window of the AN Expert Editor provides a “virtual” [control panel](#) with knobs and buttons, and lets you edit the voices much as you would if you were operating an actual hardware synthesizer.

3 Store the edited settings as a [User voice](#), then save it with other edited voices as an [AN Expert File](#).

Use the [Store](#) operation to store your newly edited voice. Then use the [Save](#) operation to save that edited voice with other User voices to an AN Expert File.

Both the Store and Save operations are necessary to ensure that your voice is saved properly. Failing to do so would be roughly similar to writing a letter but not putting it in an envelope and sending it. Make sure to execute both operations when you wish to keep a voice you’ve edited.

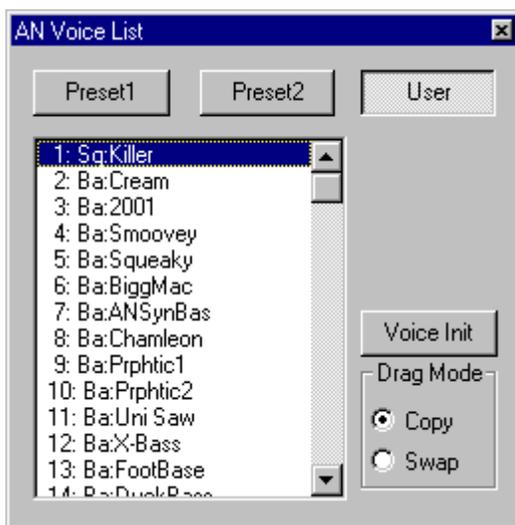
Initializing an AN Voice to the Default Settings

This function allows you to reset all the parameters of the selected voice to the factory “initial voice” default values. This gives you a “blank slate” from which you can create your own voice.

Keep in mind that this operation automatically erases all the settings of the selected voice. If you wish to save the voice for future recall, use the [Store](#) and [Save](#) functions.

1 Select “AN Voice List.”

Click the VOICE button at the bottom right of the main control panel.



You can also quickly call up this dialog box by right-clicking any inactive part of the window (on the Macintosh, click while holding the CONTROL key) and clicking “AN Voice List” in the pop-up menu. Or, you can click “Edit” on the menu bar, then select “AN Voice List.” (Keyboard shortcut: [Alt], [E], [V].)

2 Select the User bank and the desired voice to be initialized.

Click on the User bank button, then click on the desired voice.

3 Initialize the voice.

Click the “Voice Init” button in the dialog box. The specified voice is initialized and automatically selected for editing.

To return to the main control panel window, close the dialog box (click the close button). (You can also do this by clicking anywhere on the main control panel.)

NOTE

- If you want to initialize all User voices, then click on the “INIT ALL” button in the [AN Librarian window](#).

Storing an AN Voice

This operation lets you store your voice edits as a User voice.

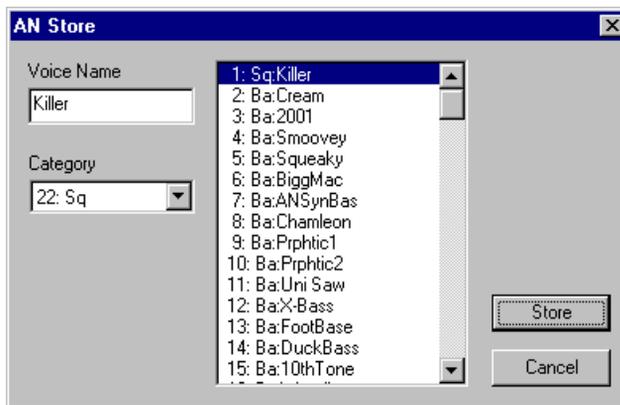
NOTE

- To ensure that your new voice is available for future recall, make sure to also **save** the voice (with other voices) to an AN Expert File.

1 Select “AN Store.”

Click the red STORE button at the bottom right of the main control panel.

You can also quickly call up this dialog box by right-clicking any inactive part of the window (on the Macintosh, click while holding the CONTROL key) and clicking “AN Store” in the pop-up menu. Or, click “Edit” on the [menu bar](#), then select “AN Store.” (Keyboard shortcut: [Alt], [E], [S].)



2 Select the destination voice.

Click on the desired voice in the dialog box. Keep in mind that this voice will be erased and replaced with the newly edited voice.

3 Store the voice.

Click the “Store” button in the dialog box. The newly edited voice is stored to the selected location.

NOTE

- This operation deletes the original voice data at the destination.
- Keep in mind that this operation stores your voice data only into the User voice memory of the AN Expert Editor and sends the current voice’s bulk data to the PLG150-AN. The current voice bulk data will be lost if you select another voice on the panel of the plug-in “mother” device. If you want to select a voice on the panel of the “mother” device, you should first transmit the User Voice. (Refer to [Transmit AN Bulk Dump Data](#) in the AN Expert Editor Setup, Insert & Transmit tab.) There is no need to transmit AN Bulk Dump Data if you select a voice in the Voice List of the AN Expert Editor, since the current voice bulk data is sent with that operation.
- The User voice data of the PLG150-AN is lost when the “mother” device is turned off. In order to store User voices on a Modular Synthesis Plug-in System compatible instrument that have been edited/created with the computer-based AN Expert Editor (or with the compatible instrument itself), you’ll need to use an external memory device, such as a memory card. For details on storing voices, refer to the owner’s manual of your Modular Synthesis Plug-in System compatible instrument.

Saving data to an AN Expert File

Once you've edited an AN voice and pattern to your satisfaction you can save it to an AN Expert File. Each AN Expert File can contain up to 128 voices and 128 Step Sequencer patterns, and these can be called up at any time with the Open function. (Also see [Calling Up data from an AN Expert File.](#))

Additional [AN Expert files](#) (each with 128 User voices and 128 User Step Sequencer patterns) can be saved to floppy disks or your hard disk drive --- giving you unlimited storage for your original voices. For organizing the voices in the AN Expert Files, use the convenient [AN Librarian](#) function.

1 Select "Save AN Expert File."

Click "File" on the menu bar, then select "[Save AN Expert File.](#)" (Keyboard shortcut: [Alt], [F], [W].)

NOTE

- "Save AN Expert File" can also be selected from the [toolbar](#).

2 Select the desired folder, type in the file name, and click "Save."

Calling Up data from an AN Expert File (Open)

Once you've saved a set of User voices and User Step Sequencer patterns to one or more AN Expert Files (see [Saving Voices](#)), you can instantly call up the desired voices with this command.

To create a new AN Expert File, use the [New AN Expert File](#) command.

1 Select "Open AN Expert File."

Click "File" on the menu bar, then select "[Open AN Expert File.](#)" (Keyboard shortcut: [Alt], [F], [R].) Open AN Expert File is also available on the [toolbar](#).

2 Select the desired folder and file name, then click "Open."

NOTE

- Keep in mind that this operation loads the User voice and Step Sequencer pattern data only into the User voice memory of the AN Expert Editor. After opening a file, if you want to play with these Voices or Step Sequencer patterns separate from the AN Expert Editor, you should transmit the User voice or Step Sequencer pattern data. (Refer to [Transmit AN Bulk Dump Data](#) in the AN Expert Editor Setup, Insert & Transmit tab.) There is no need to transmit AN Bulk Dump Data if you select a voice in the Voice List of the AN Expert Editor, since the current voice bulk data is sent with that operation.

Inserting Edited Voice Data to a Track

NOTE

- The following information pertains only to the Plug-in Editor.

User voice (or User Step Sequencer pattern) data can be inserted to a host application's track (using [Insert AN Bulk Dump Data](#)). By inserting appropriate data at appropriate points in the song, you can have the AN voices change automatically as needed.

1 Select “AN Expert Editor Setup.”

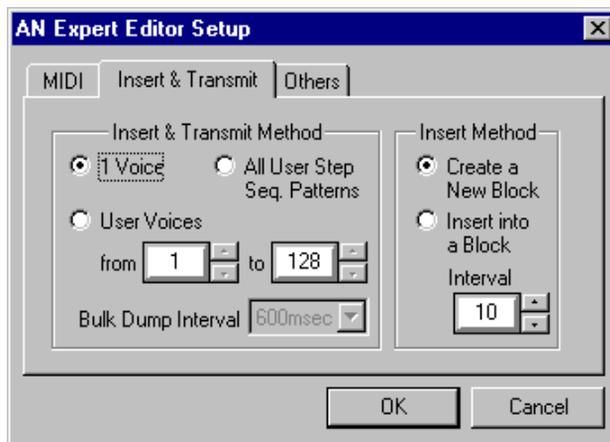
Click “Setup” on the menu bar, then select “AN Expert Editor Setup.” (Keyboard shortcut: [Alt], [U], [U], [ENTER].)

NOTE

- “AN Expert Editor Setup” can also be selected from the [toolbar](#).

2 Select the “Insert & Transmit” tab.

3 Click on the desired settings.



4 Click “OK.”

5 Select “Insert AN Bulk Dump Data” from the [Setup menu](#) (keyboard shortcut: [Alt], [U], [I]), or from the [toolbar](#).

6 Set the location (Track, Measure, Beat, and Clock).

7 Click “OK.”

HINT

By using the [Insert](#) and [Extract](#) functions together, you can record and recall your edits as needed — giving you an unlimited amount of “undos.” For each major edit, use Insert to save the edited condition to a section of a track (inserting each edit to subsequent sections of the same track). Then, to recall any given edit, use the Extract function and select the appropriate range of measures.

Using the Morphing Function

This exceptionally powerful function allows you to use any MIDI controller (such as a modulation wheel, foot controller, or after touch) to “morph” or crossfade between two distinct voices — in real time as you play! Naturally, you can record controller data to a sequencer for automated morphing within a song as well. This lets you create dramatic or subtle sonic changes in your performance or song.

NOTE

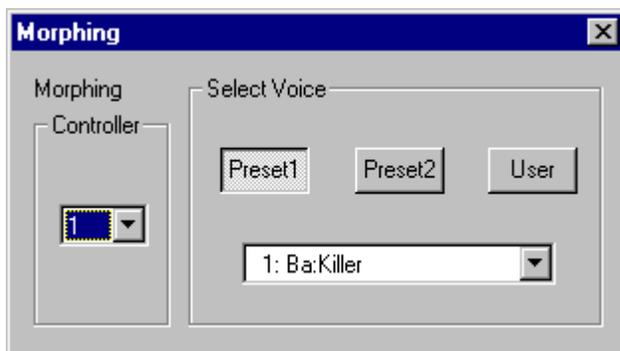
- The AN Morphing settings apply to all voices for the AN Expert Editor, and cannot be set independently for each voice (this includes the **MORPH** switch).

1 Select “AN Morphing.”

Click “Setup” on the menu bar, then select “AN Morphing.” (Keyboard shortcut: [Alt], [U], [P].)

NOTE

- “AN Morphing” can also be selected from the **toolbar**.



2 Select the desired MIDI controller.

Do this from the “Morphing Controller” combo box. After touch (AT) or any one of the 95 control change numbers can be selected. For example, if controller #1 is specified here, the modulation wheel on a MIDI keyboard can be used to morph between the two voices.

NOTE

- The particular MIDI controller and its actual number assignment may depend on settings made to the connected MIDI instrument; see the relevant owner’s manual for details. Also, refer to the list of **control change numbers** and their commonly used controllers.

3 Select the desired voice for Morphing.

To do this:

- 1) Specify a bank by clicking on the desired bank button: Preset 1, Preset 2, or User.
- 2) Click on the voice combo box and select the desired voice. For a complete list of available voices, see the Voice List in the PLG150-AN Owner's Manual.

NOTE

- Each voice name is preceded by a two-letter category abbreviation that indicates the general instrument group to which the voice belongs. For example, "Ld" indicates "lead," "Ba" indicates "bass," "Pd" indicates "pad," and so on. For details, see the Voice List in the PLG150-AN Owner's Manual.

- 4 Turn on the MORPH switch on the AN Expert Editor's control panel.
- 5 Use the appropriate controller (modulation wheel, after touch, foot controller, etc.) while you play, to morph between the two voices.

Recording Within the AN Expert Editor

NOTE

- The following information pertains only to the Plug-in Editor.
- Depending on your particular host application, certain operation steps may differ and/or some functions may not be available.

This powerful and convenient function allows you to record continuous edits to the AN voice in real time. For example, if you've recorded note data to one track in host application, you can use the AN Expert Editor to create gradual, dynamic changes in the track with any of the AN Expert Editor parameters. These changes can be saved with the song and can be played back exactly as you recorded them.

- 1 **Select "AN Expert Editor Setup."**

Click "Setup" on the menu bar, then select "[AN Expert Editor Setup](#)." (Keyboard shortcut: [Alt], [U], [U], [ENTER].)

NOTE

- "AN Expert Editor Setup" can also be selected from the [toolbar](#).

- 2 **Select the desired track for recording.**

Do this from the "REC Track" combo box in the MIDI tab. For most practical purposes, this track should be one to which you have already recorded note data and intended for use with an AN voice. Note that you can record the track without having to go to the Track View window in host application and enable it.

3 Click “OK.”

4 Set recording-standby.

Click “Edit” on the menu bar, then select “Record.” Alternately, click on the [Record button](#) in the toolbar.

5 Start recording on the host applications.

6 Edit the AN parameters as desired.

Any edits you make within the AN Expert Editor are recorded in real time, as you make them. You can even record voice changes in real time.

7 Stop recording on the host applications.

8 Exit from recording-standby.

Click “Edit” on the menu bar, then select “Record.” Alternately, click on the Record button in the toolbar.

9 Play back the song.

Use the Play Control window to return to the beginning of the track and start playback. Further edits can be recorded (overdubbed) to the same track by re-selecting the AN Expert Editor window and repeating steps #4 - #8 above.

NOTE

- If you're not satisfied with the recorded result, the last recording you've done can be canceled using the Undo function in the Edit menu (keyboard shortcut: Ctrl + Z).

Parameters

Most of the AN Expert Editor parameters for editing the AN voices are contained in the virtual “main control panel” screen. From this main panel, you can also jump to other windows for controlling additional PLG150-AN functions (such as the [Control Matrix](#), [Free EG](#), and [Pattern Generator](#)).

AN Expert Editor Main Window

This is the main control panel for the AN Expert Editor, and is comprised of the virtual “panel” controls, the [toolbar](#) (at the top), and the virtual “LCD display” at the bottom.

- Main Screen



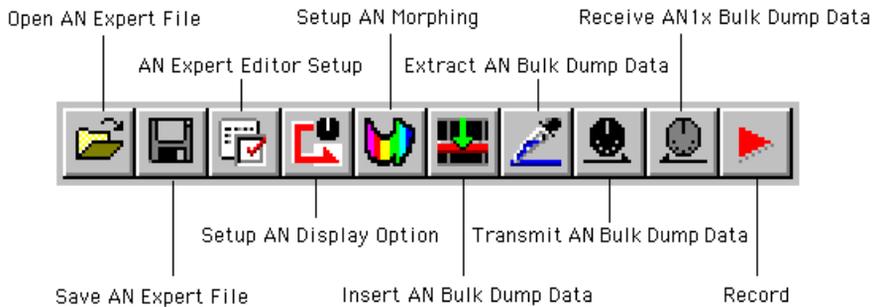
- Master Menu

The [master menu](#) (which includes [AN Voice List](#), [Store](#), and the [Display Option](#)) can be selected from the main screen by right-clicking any inactive part of the front panel (on the Macintosh, click while holding the CONTROL key).



• Toolbar

The toolbar gives you quick access to some important functions and controls. These buttons let you easily execute the desired function without having to select a menu or leave the AN Expert Editor window.



Open AN Expert File

This is the same as the corresponding command in the File menu. It lets you select and open an existing AN Expert File. (See File Menus, [Open AN Expert File](#).)

Save AN Expert File

This is the same as the corresponding command in the File menu. It lets you save the current AN Expert Editor settings as a parameter file for future recall. (See File Menus, [Save AN Expert File](#).)

AN Expert Editor Setup

This is the same as the corresponding command in the Setup menu. It lets you make various important settings for configuring the AN Expert Editor with the PLG150-AN. (See Setup Menus, [AN Expert Editor Setup](#).)

Setup AN Display Option

This convenient feature lets you change the display of the main control panel to indicate the current status of certain signal routings within the PLG150-AN. (See Setup Menus, [AN Display Option](#).)

Setup AN Morphing

This is the same as the corresponding command in the Setup menu. It lets you make the appropriate settings for the Morphing function (selecting the MIDI controller and the Morphing voice). (See Setup Menus, [AN Morphing](#).)

Insert AN Bulk Dump Data (Plug-in Editor only)

This is the same as the corresponding command in the Setup menu. It lets you insert the current AN Expert Editor settings to a specified track/position in the host application song. (See Setup Menus, [Insert AN Bulk Dump Data](#).)

Transmit AN Bulk Dump Data

This is the same as the corresponding command in the Setup menu. It lets you transmit the current AN Expert Editor settings as MIDI data to the PLG150-AN board. (See Setup Menus, [Transmit AN Bulk Dump Data](#).)

Extract AN Bulk Dump Data (Plug-in Editor only)

This is the same as the corresponding command in the Setup menu. It lets you import the bulk data of AN voice or Step Sequencer patterns in the sequenced song data to the AN Expert Editor. (See Setup Menus, [Extract AN Bulk Dump Data](#).)

Receive AN1x Bulk Dump Data

This is the same as the corresponding command in the Setup menu. It lets you receive the voice or Step Sequencer settings from a connected AN1x Control Synthesizer as MIDI data. (See Setup Menus, [Receive AN1x Bulk Dump Data](#).)

Record (Plug-in Editor only)

This allows you to record your edit moves to a track, creating dynamic changes in the AN voice as the song plays. (See [Recording Within the AN Expert Editor](#).)

NOTE

- Depending on your particular host application, certain operation steps may differ and/or this function may not be available.

• LCD Display

This virtual “LCD” functions just like the display on an actual synthesizer’s front panel.

Indicates the current voice’s bank/number as well as its category and name.

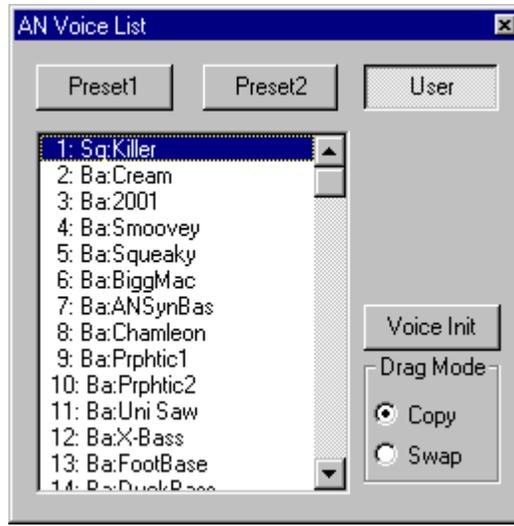


Full name of the currently selected parameter.

Indicates the currently selected parameter’s value or setting. By clicking on this third line, you can also directly change the value by typing it on the computer keyboard. (See [Computer keyboard](#).)

• VOICE Button

Pressing the VOICE button calls up the [AN Voice List](#) dialog box, allowing you to select the desired voice bank and voice. It also allows you to reorganize the voices of a selected bank, as well as initialize a voice --- in other words, this resets all parameters to their normal values, giving you a “blank slate” voice to work with.



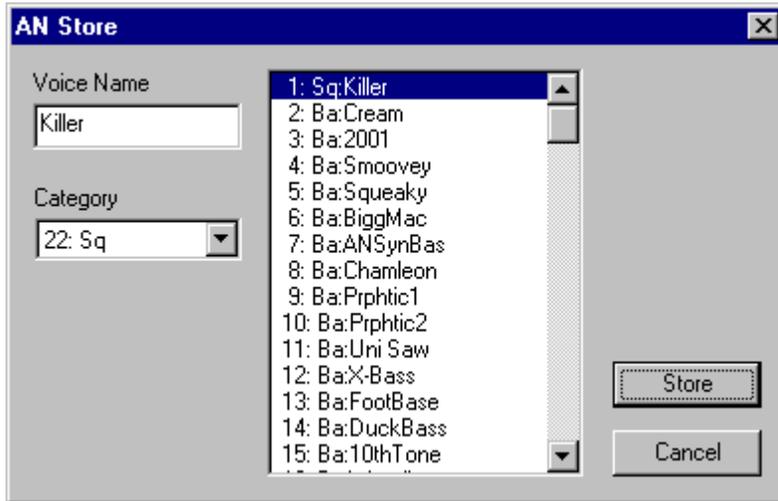
To select a bank, click on the desired bank button: Preset 1, Preset 2, or User. Each bank contains 128 voices. To select a voice, click on the desired voice in the box. For a complete list of available voices, see the Voice List in the PLG150-AN Owner's Manual.

NOTE

- Each voice name is preceded by a two-letter category abbreviation that indicates the general instrument group to which the voice belongs. For example, “Ld” indicates “lead,” “Ba” indicates “bass,” “Pd” indicates “pad,” and so on.

- **STORE Button**

Pressing the STORE button calls up the [AN Store](#) dialog box, allowing you to store the desired voice to the User bank. It also lets you enter a name and category abbreviation for the voice.



To name the voice, click on the Voice Name box, and type in the desired name. To specify a category, click the Category combo box, and click the desired category abbreviation. (The “0: ---” setting indicates no category.) To store the newly named voice, click “Store.” For a complete list of available voices and descriptions of the category abbreviations, see the Voice List in the PLG150-AN Owner’s Manual.

NOTE

- Each voice name is preceded by a two-letter category abbreviation that indicates the general instrument group to which the voice belongs. For example, “Ld” indicates “lead,” “Ba” indicates “bass,” “Pd” indicates “pad,” and so on.

■ Setting and Changing Parameter Values

• For panel knobs:

Left-click on the knob and drag horizontally or vertically as desired. Dragging to the left or down decreases the value, and dragging right or up increases it. The knob “rotates” as you drag it, and the parameter value (shown just above each knob) changes accordingly. Any parameter changes are output as MIDI data, both to the PLG150-AN and the host application (for recording).

Operation of the knobs can also be set so that moving the mouse in a circular direction — as if you were actually rotating the knob — changes the parameter value. (See [Parameter Knob Operation](#).)



NOTE

- The panel knob operation can be changed to let you “rotate” the knob, instead of moving it horizontally or vertically. (See the [Others tab](#) in [AN Expert Editor Setup](#).)

• For buttons:

Simply left-click on the desired button to turn on/off or to select the appropriate setting. On/off buttons (such as [MORPH](#)) have virtual “lamps” that light when the function is on.



• Combo boxes

For combo boxes (such as Control Source in the [Control Matrix Parameter tab](#)), click the down arrow to expand the box, then highlight the desired setting.

• DATA DEC (Decrease) and INC (Increase) buttons

Click on the desired parameter, then click either of these buttons to decrease the value/setting (DEC) or increase it (INC). These buttons in some cases (e.g., [VCO 1 WAVE](#)) can be used to select values/settings that are not available otherwise>



• Mouse buttons

A few parameters (such as Unison Detune and LFO 1 Delay in the [Detail Parameters tab](#)) can be adjusted with the mouse buttons. Click on the desired parameter, then click the left mouse button to decrease the value or click the right mouse button to increase it.

• Computer keyboard

All of the value parameters can be directly changed by typing in the appropriate numbers from the computer keyboard. Click on the desired parameter, then click the third (bottom) line in the virtual LCD and type in the desired value. Press [ENTER] to enter the value.

A few parameters (such as Unison Detune and LFO 1 Delay in the [Detail Parameters tab](#)) can be directly changed by clicking on the desired parameter, then typing in the desired value.

• Computer keyboard shortcuts:

• Moving around the panel

Pressing the arrow keys by themselves lets you select parameters by moving around the panel in the respective direction (up, down, left, right).

• Rapidly adjusting values

You can also use the arrow keys to adjust the parameter values. Simultaneously hold down [SHIFT] and press or hold one of the arrow keys. The up or right keys increase the value while the down or left keys decrease it. Holding down [SHIFT] and the appropriate arrow key rapidly increases or decreases the value.

The Page Up and Page Down keys on the computer keyboard can also be used. Press Page Up to increase the value, and Page Down to decrease it. Hold down the appropriate button to rapidly increase or decrease the value.

• Value charts

A few parameters (such as [VCF Velocity](#)) have pop-up “value charts,” from which you can select the desired value. Simply left-click on the parameter’s button, highlight the desired value, then left click on the value.

-64	-48	-32	-16	0	+16	+32	+48
-63	-47	-31	-15	+1	+17	+33	+49
-62	-46	-30	-14	+2	+18	+34	+50
-61	-45	-29	-13	+3	+19	+35	+51
-60	-44	-28	-12	+4	+20	+36	+52
-59	-43	-27	-11	+5	+21	+37	+53
-58	-42	-26	-10	+6	+22	+38	+54
-57	-41	-25	-9	+7	+23	+39	+55
-56	-40	-24	-8	+8	+24	+40	+56
-55	-39	-23	-7	+9	+25	+41	+57
-54	-38	-22	-6	+10	+26	+42	+58
-53	-37	-21	-5	+11	+27	+43	+59
-52	-36	-20	-4	+12	+28	+44	+60
-51	-35	-19	-3	+13	+29	+45	+61
-50	-34	-18	-2	+14	+30	+46	+62
-49	-33	-17	-1	+15	+31	+47	+63

• Initialize

If you need to initialize a specific parameter to its default value, you can quickly call up a pop-up menu for this by right-clicking on the appropriate parameter control in the display (on the Macintosh, click while holding the CONTROL key).

For example, if you've changed the LFO 1 Speed setting and want to restore the parameter to its original value, move the cursor to the LFO 1 SPEED knob and click the right mouse button.



Click on "Init" to restore the original setting or value of the parameter.

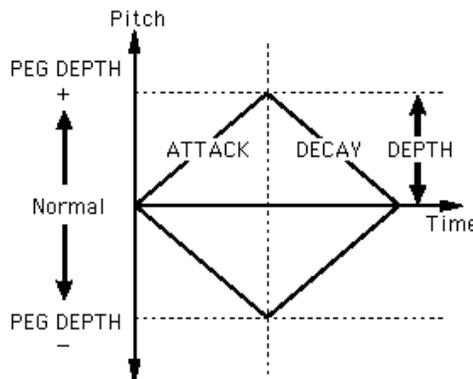
"Init" will be ghosted and unavailable if no edits have been made to the selected parameter. Initialize is completely independent for each parameter.

■ AN Parameters.....

The various parameters are arranged in "blocks" according to their general functions. These correspond to the basic modules of sound generation or control in the PLG150-AN.

PEG (Pitch EG) Parameter Block

The PEG parameters determine how the pitch of the voice changes over time. This lets you produce subtle or pronounced pitch changes as a note is played.



HINT

The PEG can also be used as a control source (in [PWM Source](#), [Sync Pitch Control Source](#), [FM Source](#), etc.), giving you even greater editing flexibility.

- **ATTACK (PEG Attack Time)**

Range: -64 ... +63

This determines the Attack Time of the PEG, or how long it takes for the pitch to change, according to the PEG Depth setting. This parameter has no effect (except when the PEG is used as a control source - for example, in [PWM Source](#), etc.) unless the [DEPTH](#) parameter is set to an appropriate value.

- **DECAY (PEG Decay Time)**

Range: -64 ... +63

This determines the Decay Time of the PEG, or how long it takes for the pitch to return to normal. This parameter has no effect (except when the PEG is used as a control source - for example, in [PWM SourceVCO1PWMSRC](#), etc.) unless the [DEPTH](#) parameter is set to an appropriate value.

NOTE

- When the Decay Time is set to the maximum value of 127, the pitch (as set in [PEG Depth](#)) is held indefinitely without changing.

- **DEPTH (PEG Depth)**

Range: -64 ... +63

This determines the depth of the pitch change for the PEG (in semitones). This can be set independently for either the VCO 1 or VCO 2, or both (with the [PEG Switch](#) parameter). This must be set to an appropriate value for the PEG to have an effect on the sound.

- **PEG Switch — VCO 1/VCO 2**

Settings: VCO 1, VCO 2, Both

This switch determines which VCO will be affected by the [PEG Depth](#) parameter. When this is set to “Both,” the VCO 1 and VCO 2 will be affected together (both lamps light).

OCT (Octave Shift)

Range: -2 ... +2

This determines the octave setting of the selected voice. The octave setting is also indicated by the lamps.

CTRL MATRIX (Control Matrix)

The Control Matrix is a highly flexible, complex function that lets you use up to 15 different MIDI controllers to control 15 separate PLG150-AN parameters, in real time. The source controllers can be a modulation wheel, data entry slider, foot controller, key velocity, key scaling, or any of the controllers in the MIDI specification. These can be used to control any of 46 different destination parameters, such as VCF Cutoff, Resonance, FEG Depth, and a wide variety of others.

This gives you the freedom to configure a completely different set of sources and destination parameters for each voice. You can, for example, configure the PLG150-AN to use After Touch to apply vibrato, or the Modulation Wheel to change the resonance while you play, determine the range for both Pitch Bend up and down, and much more.

For information on the Control Matrix settings, see the [Ctrl Matrix Parameters](#) tab.

- [DETAIL Page \(Control Matrix Parameters\)](#)

FREE EG

The 4-track [Free EG](#) lets you record complex control movements, in order to “hand draw” filter, resonance, LFO and many other available parameters over time—and have them play back automatically by simply playing a voice. A variety of drawing and editing tools are available for creating unique, continuous parameter changes that would be impossible to achieve with conventional EGs.

Up to four different parameters can be controlled independently, each recorded into its own Free EG track. Ideal for those times when you wish you had an extra couple of pairs of hands, the Free EG lets you build up an incredibly complex, completely unique voice.

The display windows (1 - 4) indicate the parameters controlled by each Free EG track.

- [DETAIL Page \(Free EG Parameters\)](#)

PATTERN GEN. (Pattern Generator) Block

The Pattern Generator block features four basic controls for the Arpeggio and Step Sequencer — two powerful functions let you trigger complex patterns in real time, at the press of a key. For more information, see the [Pattern Generator DETAIL Page](#).

- [DETAIL Page \(Pattern Generator Parameters\)](#)

- **TEMPO**

Range: MIDI, 40 - 240 bpm (beats per minute)

This determines the speed of the Pattern Generator’s Arpeggio or Step Sequencer. If you want the clock of an external MIDI sequencer or drum machine to control the tempo of the PLG150-AN’s Pattern Generator, set the Tempo to “MIDI” so that the two devices will play in synchronization with each other.

NOTE

- When the Free EG **LENGTH** is set so that the Free EG synchronizes with Tempo, this Tempo setting affects the speed of the Free EG.

- **HOLD**

Settings: On, Off

This determines how the Pattern Generator responds to the pressing and releasing of keys. When this is set to “on” (the lamp lights), the Arpeggio or Sequencer pattern continues playing after releasing the keys. When this is set to “off,” the pattern will stop when you release the keys. For more information on using the Hold function, see [HOLD MODE](#).

HINT

Arpeggio Hold is handy when trying out different Arpeggio [Types](#) or [Subdivide](#) settings, and is literally indispensable for tweaking the tone generator parameters for your arpeggios with the [Controllers](#).

- **ARPEGGIO / SEQ**

These two buttons are used to switch between the Arpeggio and the Step Sequencer. The selected button’s lamp lights to indicate that the respective function is active. (Both buttons cannot be selected simultaneously.)

LFO Parameter Blocks

The LFO parameters allow you to create a wide variety of modulation effects, using a low frequency signal to regularly change the pitch, volume or timbre of the voice. The LFO can be used to make the sound warmer and more natural, or can be used to produce wild special effects.

HINT

LFO 1 and LFO 2 can also be used as control sources (in [PWM Source](#), [Sync Pitch Control Source](#), [FM Source](#), etc.), giving you even greater editing flexibility.

NOTE

- Depending on the setting of the selected voice's [Assign Group](#) parameter, the LFO 1 and LFO 2 blocks in the display may be different, with different sets of parameters. All LFO parameters below are available on either LFO 1 or LFO 2; however, some parameters will only be available on one of the LFO blocks, while the other block will have a limited parameter set.

• [LFO 1 / LFO 2 DETAIL Page](#)

• LFO 1 / LFO 2 WAVE

Settings:

Sine, Sine Ofst1 (Offset 1), Sine Ofst2, Sine180 Ofst1, Sine180 Ofst2

Triangle, Triangle Ofst1, Triangle Ofst2, Triangle180 Ofst1, Triangle180 Ofst2

Square, Square Ofst2, Square180 Ofst2

Saw Down, Saw Down Ofst2, Saw Up, Saw Up Ofst2

S/H (Sample & Hold), S/H Ofst2, S/H2, S/H2 Ofst2

NOTE

- Parameter settings in italics above can only be selected by using the DATA DEC/INC buttons.

This determines the type of wave for LFO 1 or LFO 2. (The same settings are available for both.) The wave set here determines the characteristics of the modulation applied to the VCO (vibrato), VCF (wah) and VCA (tremolo).

• LFO 1 / LFO 2 SPEED

Range: 1 ... 256

This determines the speed of LFO 1 or LFO 2. (This parameter is the same for both.) Higher values result in a faster LFO modulation. This is a global control in that it affects all modulation destinations (VCO 1/2, VCA, VCF) equally.

• LFO 1 / LFO 2 VCO1

(LFO 1 / LFO 2 to VCO 1 — Oscillator 1 Pitch Modulation Depth)

• LFO 1 / LFO 2 VCO2

(LFO 1 / LFO 2 to VCO 2 — Oscillator 2 Pitch Modulation Depth)

Range: -128 ... +127

This determines the degree to which the LFO 1 or LFO 2 affects the selected oscillator's pitch. This produces a vibrato effect, or a quavering, vibrating sound in the voice, by regularly modulating the pitch. Higher values result in a stronger, more pronounced vibrato sound.

NOTE

- Depending on the device or software you are using, these two parameters are combined into a single parameter, with the following different names:
 - On a Modular Synthesis Plug-in System “mother” device: “LFO Pitch Modulation Depth”
 - On an XG Plug-in System 1 “mother” device: “Vibrato Depth”
 - On the AN Easy Editor software: “Vibrato”
- **LFO 1 / LFO 2 VCA**
(LFO 1 / LFO 2 to VCA — Amplitude Modulation Depth)
Range: -64 ... +63

This determines the depth of the amplitude modulation of the VCA by LFO 1 or LFO 2. Amplitude Modulation adds a cyclical change to the volume level to create a tremolo effect. Higher values (in the positive range) widen the range of the volume change. Negative values reverse the phase of the LFO by 180 degrees.

- **LFO 1 / LFO 2 VCF (LFO 1 / LFO 2 to VCF — Filter Modulation Depth)**
Range: -64 ... +63

This determines the depth of the filter modulation of the VCF by LFO 1 or LFO 2. Filter Modulation adds a cyclical change to the filter cutoff frequency to create a wah effect. Higher values (in the positive range) widen the range of the cutoff frequency change. Negative values reverse the phase of the LFO by 180 degrees.

VCF / FEG Parameter Block

VCF Parameters

The VCF is a filter that allows a specific range of frequencies to pass, while muting all others. Movement of the filter through various frequencies as well as the use of Resonance allows you to create exceptionally dynamic, dramatic changes in the sound. The VCF can be controlled by the filter EG (FEG) parameters, allowing you to have the timbre of the sound change automatically over time.

- **VELOCITY (FEG Velocity Sensitivity)**
Range: -64 ... +63

This determines how the filter EG responds to key velocity. For positive values, playing the keys with greater strength results in a wider, more dynamic filter EG (greater filter changes). For negative values, the relationship is inverse: a softer key touch results in a wider, more dynamic filter EG. A setting of “0” results in no change of the filter by playing strength.

To set this, click the VELOCITY button and highlight the desired value in the pop-up chart. When a value other than “0” is set, the VELOCITY lamp lights.

- **HPF (HPF Cutoff)**

Range: 0 ... 127

This determines the cutoff frequency of the High Pass Filter (-6 dB/Oct). Frequencies above the setting are passed while those below are cut off. Higher values increase the HPF Cutoff frequency, resulting in a brighter sound.

To set this, click the HPF button and highlight the desired value in the pop-up chart. When a value other than "0" is set, the HPF lamp lights.

NOTE

- This High Pass Filter is applied to the signal after the mixer, and is different than the one available in the [VCF Type](#) parameter.

- **TYPE (VCF Filter Type)**

Settings: LPF24, LPF18, LPF12, BPF, HPF12, BEF

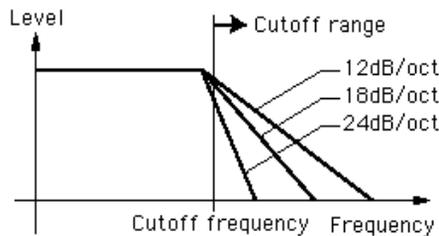
NOTE

- When "LPF18" is selected, both the LPF24 and LPF12 lamps light together.

This determines the type of filter used by the VCF. The VCF passes only a specified range of frequencies while cutting off the rest, to give you versatile control over the timbre. The six filter types are described below.

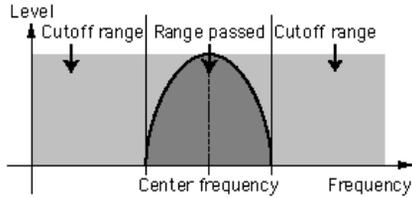
LPF24, LPF18, LPF12

The Low Pass Filter passes only those frequencies below the specified cutoff point. Cutoff curves of 24dB/octave (LPF24), 18dB/octave (LPF18) and 12dB/octave (LPF12) can be selected.

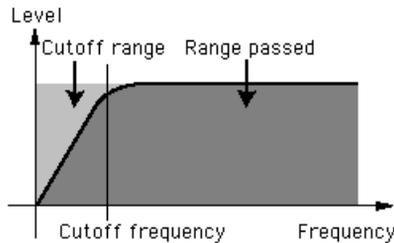


BPF

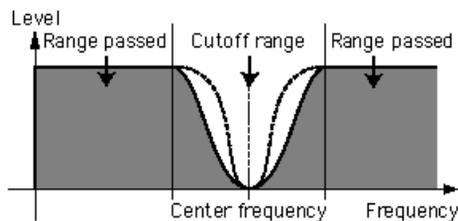
The Band Pass Filter passes only those frequencies in the specified range, with a cut-off curve of 12dB/octave.

**HPF12**

The High Pass Filter passes only those frequencies above the specified cutoff point, with a cutoff curve of 12dB/octave.

**BEF**

The Band Eliminate Filter passes only those frequencies outside the specified frequency range. The Resonance setting (below) determines the eliminated range.

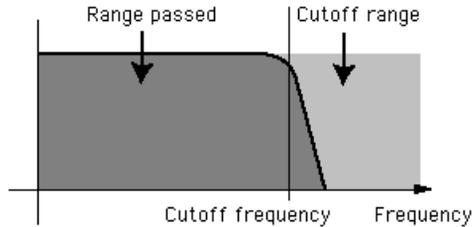
**NOTE**

- The filters listed above apply to the signal output from the HPF located between the Mixer and VCA. For more information about the signal path, see [AN Display Option](#).

- **CUTOFF (VCF Cutoff Frequency)**

Range: 0 ... 127

This determines the cutoff frequency of the VCF (filter). For example, when the filter type is set to Low Pass Filter, the VCF mutes all frequencies higher than the cutoff point and “passes” the lower frequencies. Lower cutoff values create a deeper, more rounded tone, while higher values create a brighter tone.

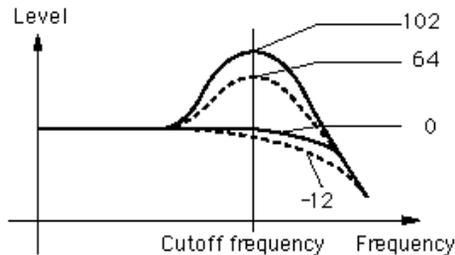


VCF Type = Low Pass Filter

- **RES. (VCF Resonance)**

Range: -12 ... +102

This determines the amount of resonance boost, or emphasis of harmonics near the cutoff frequency. Higher values produce a higher resonant peak (producing sharper high tones), while lower values produce a relatively flat response. A setting of “0” applies no resonance.



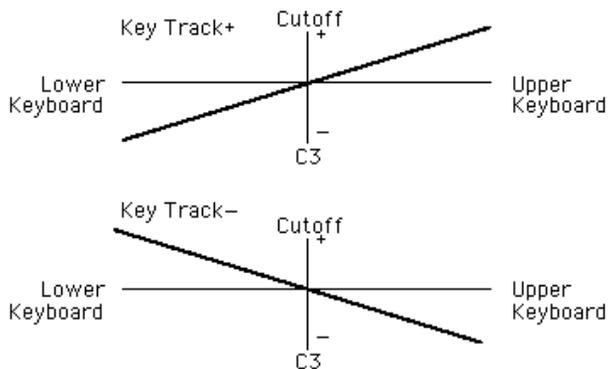
- **KEY TRK (VCF Keyboard Tracking)**

Range: -32 ... +63

This determines the degree to which the VCF “tracks” or follows the keyboard. In other words, the higher the notes played on the keyboard, the more the cutoff frequency is raised (or lowered). When Keyboard Tracking is applied, the cutoff range shifts accordingly at every note, with C3 as the base. Positive values will cause higher notes to have a higher cutoff point. Negative values cause higher notes to have a lower cutoff frequency. A value setting of “0” results in no key tracking.

NOTE

- When this is set to “+32,” the change in the cutoff frequency matches (or is directly proportional) with the change in the keyboard notes.



FEG (Filter EG) Parameters

The FEG parameters determine how the timbre of the voice changes over time. This lets you produce subtle or pronounced filter effects (such as wah, for example).

The [EG DEPTH](#) parameter (in the VCF block) must be set to a proper level for the FEG parameters to have an effect on the sound.

HINT

- The FEG can also be used as a control (in [PWM Source](#), [Sync Pitch Control Source](#), [FM Source](#), etc.), giving you even greater editing flexibility.

- **DEPTH (Filter EG Depth)**

Range: -128 ... +127

This determines the range of movement of the cutoff frequency. This must be set to a proper level for the FEG parameters (Attack, Decay, Sustain, and Release) to have an effect on the sound. Positive values increase the Filter EG Depth. Negative values reverse the shape of the envelope.

- **ATTACK (Filter EG Attack Time)**

Range: 0 ... 127

This determines the attack time of the FEG, which is the time it takes for the signal to reach its maximum cutoff frequency level after a key is pressed (key on). Higher values produce a longer Attack time. (See illustration below.)

- **DECAY (Filter EG Decay Time)**

Range: 0 ... 127

This determines the decay time of the FEG, which is the time it takes for the signal to reach its sustain level from the maximum level while a key is held. Higher values produce a longer Decay time. (See illustration below.)

- **SUSTAIN (Filter EG Sustain Level)**

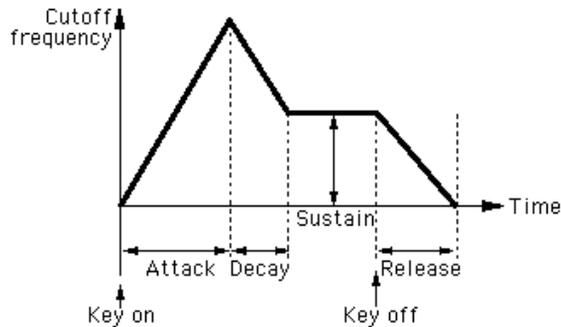
Range: 0 ... 127

This determines the level of sustain of the FEG, which is the fixed level of the cutoff frequency maintained as long as the key is held. Higher values increase the Sustain level. (See illustration below.)

- **RELEASE (Filter EG Release Time)**

Range: 0 ... 127

This determines the release time of the FEG, which is the time it takes for the filter to reach its initial level after a key is released (key off). Higher values increase the Release time. (See illustration below.)



SYNC Block

The PLG150-AN features two oscillator sections: VCO 1 and VCO 2. As on conventional analog synthesizers, the Sync block lets you synchronize the two waveforms to create a more complex sound, with more harmonics. However, the PLG150-AN takes the sonic possibilities even further. Since the VCO 1 oscillator itself actually contains two separate oscillators, these two “internal” oscillators can be synchronized and then layered with VCO 2 to produce sounds of even greater complexity. (For more about the VCOs and Oscillator Sync, see the PLG150-AN Owner’s Manual.)

To see an indication of the Oscillator Sync path, enable the [Oscillator Sync Routing](#) in the Display Option window.

- **MODE**

Settings: Off, VCO 1 Master > Slave (VCO 1 master into slave), VCO 2 > 1 (VCO 2 into VCO 1)

This determines the on/off status of Sync, as well as its mode. When this is set to “VCO 1 Master > Slave,” the two VCO 1 oscillators are separated inside of the VCO1 and synchronized, with one designated as the controlling “master” and the other the “slave.” When this is set to “VCO 2>1,” the VCO 1 is synchronized to VCO 2, with the VCO 2 designated as the “master.”

NOTE

- The Master oscillator determines the overall pitch of the sound, and the Slave oscillator controls the tone by adding harmonics.

- **SRC (Sync Pitch Control Source)**

Settings: Fixed, PEG, FEG, LFO1, LFO2

The Sync Pitch Control Source setting determines the source which applies the modulation over time to the slave oscillator. When this is set to “Fixed,” there is no change in modulation over time.

- **DEPTH (Sync Pitch Control Depth)**

Range: -64 ... +63

This determines the amount of depth of control from the Sync Control Pitch Source (determined by the [Sync Pitch Control Source](#) setting above) over time. Higher values increase the Depth. When [Sync Mode](#) is set to Off, this parameter has no effect.

FM Block

The Frequency Modulation (FM) function gives you additional modulation control over the sound, letting you apply the FM signal (called the “modulator”) to the VCO 1 (here called the “carrier”), letting you dramatically change the harmonic complexity of the sound. In the FM block, the Depth of the modulation can be controlled; however, additional detailed parameters are available in the [Details page](#). The lamps (VCO 2, VCO 1, OTHER) indicate the modulator (source) for the FM signal, determined in the [Src2](#) parameter. To see an indication of the FM modulation path, enable the [FM Routing](#) in the Display Option window.

- [FM DETAIL Page](#)

- **DEPTH**

Range: -64 ... +63

This determines the amount of modulation created by the FM function. Higher values result in greater modulation depth. Although the overall sound depends on the setting of the FM parameters in the [Details page](#), higher Depth values generally result in a more clangorous sound.

NOTE

- This parameter differs from that in FM Synthesis (such as used by DX-series synthesizers). Too deep of a setting will change the pitch of the voice.

NOTE

- When the [VCO1 Wave](#) is set to “Multi Saw,” the Depth setting has no effect.

MIXER Block

As its name implies, the Mixer module lets you control the levels of the various sound sources of the PLG150-AN.

- **VCO 1 (VCO 1 Level)**

Range: 0 ... 127

This determines the balance of the VCO 1 level in relation to the VCO 2, Ring Modulator, Feedback, and Noise levels. Higher values result in a higher VCO 1 level. When not using VCO1, set the value to “0.”

- **VCO 2 (VCO 2 Level)**

Range: 0 ... 127

This determines the balance of the VCO 2 level in relation to the VCO 1, Ring Modulator, Feedback, and Noise levels. Higher values result in a higher VCO 2 level. When not using VCO2, set the value to “0.”

- **NOISE (Noise Level)**

Range: 0 ... 127

This determines the balance of the Noise signal in relation to the VCO 1, VCO 2, Ring Modulator, and Feedback levels. The higher the value, the greater the Noise Level. When not using Noise, set the value to “0.”

NOTE

- By mixing in Noise and using the AN Expert Editor to select an appropriate Filter Type (such as VCF, HPF, etc.), you can create a wide variety of unique “special effect” sounds.

- **RING MOD (Ring Modulator Level)**

Range: 0 ... 127

This determines the balance of the Ring Modulator level in relation to the VCO 1, VCO 2, Noise, and Feedback levels. The higher the value, the greater the Ring Modulator level. When not using the Ring Modulator, set this value to “0.”

NOTE

- The Ring Modulator combines the VCO 1 and VCO 2. It is particularly effective for producing dissonant interval sounds with a clangorous, or metallic effect.

- **F.B. (Feedback Level)**

Range: 0 ... 127

This determines the balance of the Feedback level in relation to the VCO 1, VCO 2, Noise, and Ring Modulator levels. Feedback returns the VCA output signal back to the input, creating a feedback “loop.” The higher the value, the greater the Feedback level. When not using Feedback, set this value to “0.”

CAUTION!

- Be careful when adjusting this parameter, since the higher settings could result in excessively loud sounds that may inadvertently damage the connected audio equipment (and your ears!).

VCO 1 / VCO 2 Blocks

The VCO (voltage controlled oscillator) modules 1 and 2 are where the basic sounds for the PLG150-AN are generated. In these blocks, you can determine the waveform, its pitch, and adjust the pulse width settings for the oscillator.

• VCO 1 WAVE

Settings: Available waves depend on the current **SYNC** status (on/off).

When SYNC is off:

Saw, Saw 2, Pulse, Mix, Multi Saw

When SYNC is on (set to "VCO 1 Master > Slave" or "VCO 2 > 1"):

Saw, Pulse, Inner1, Inner2, Inner3, Square, Noise

NOTE

- Parameter settings in *italics above* can only be selected by using the DATA DEC/INC buttons.

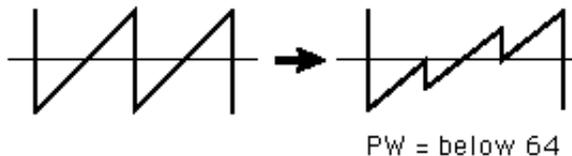
This determines the waveform for the VCO 1 oscillator.

NOTE

- The difference between saw/pulse Sync on and Sync off is only a slight nuance in sound which becomes especially distinctive when the **Pulse Width** is set to a value other than 64.

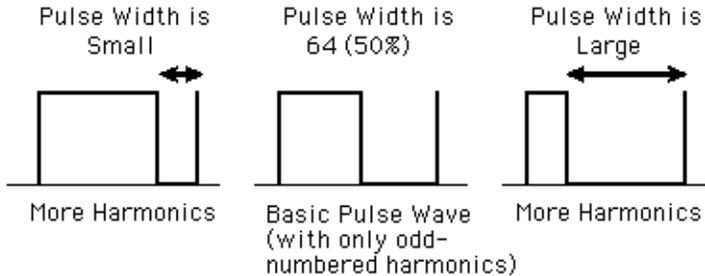
Saw (Sawtooth)

The Saw (sawtooth) wave derives its name from its shape, and is used to create a trumpet or violin sound. Since it contains all harmonics in the spectrum, it produces a full, rich sound. When used with the **Pulse Width** function, increasing the even harmonics can raise the pitch to a maximum of a full octave.



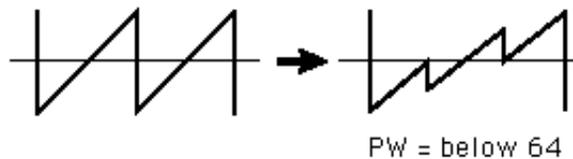
Pulse

The Pulse wave is used to make woodwind (clarinet-type) sounds. Its spectrum is similar to a sawtooth wave, but since every second (even-numbered) harmonic is missing, the waveform contains only odd-numbered harmonics when **Pulse Width** is set to "64".



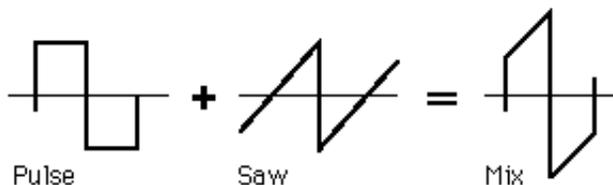
Saw2 (Sawtooth2)

The spectrum of the Saw2 wave is created by a sawtooth wave combined with a pulse wave, and therefore is slightly different than the Saw wave. When the **Pulse Width** is set to 64, the shape of the wave is the same as Saw. Even if you increase the even-numbered harmonics by the Pulse Width, the basic pitch remains the same.



Mix

The mix wave is formed by a combination of saw and pulse waves.



Multi Saw

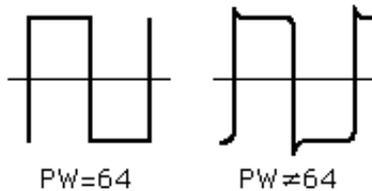
This wave behaves like multiple saw waves combined together with their pitches detuned from each other. When Multi Saw is selected, all of the VCO 1 PWM parameters are unavailable, and are replaced with special **VCO 1 Detune** and **Mix** parameters.

Inner1, Inner2, Inner3

When SYNC is set to “on,” three “inner” waves are available. This wave is effective when used with [Pulse Width](#).

Square

Basically, this is the same as a Pulse wave. Changing the [Pulse Width](#) does not alter the width of the wave (this is maintained at 50%), but instead changes its shape slightly, making it more complex.

**Noise**

This produces random fluctuations in sound, equally across the entire spectrum, resulting in noise, or a “hissing” sound.

NOTE

- Using [Oscillator Sync Pitch](#) to control the Noise wave over time results in a unique non-pitched sound in which the harmonics are shifted.

- **VCO 1 PITCH (Pitch Coarse)**

Range: -64 ... +63

This determines the pitch of the VCO 1 in semitones. A value of “0” is normal pitch.

- **VCO 1 FINE**

Range: -50 ... +50

This determines the pitch of the VCO 1 in 1-cent steps over a range of 100 cents, or one semitone.

- **VCO 1 SYNC PITCH**

Range: -64 ... +63

This determines the pitch of the slave oscillator in semitones, available only when [Sync Mode](#) is set to on. This lets you create a difference in pitch between master and slave oscillators and control the resulting harmonic interval.

At the “0” setting, the pitch is the same as the master oscillator. Higher values increase the interval, and negative values result in a softer sound.

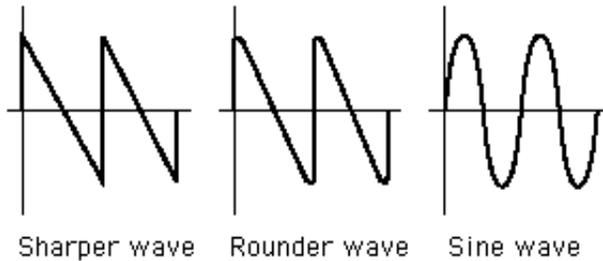
NOTE

- To achieve a discernible result, make sure the VCO 1 Level (in the MIXER block) is turned up high enough.

- **VCO 1 EDGE**

Range: 0 ... 127

This determines the sharpness or smoothness of the edge of the VCO1 wave. Higher values produce a sharper wave, resulting in a harsher sound. Lower values produce a rounder wave, resulting in a softer sound. A value of "0" results in a sine wave.



VCO 1 PWM (Pulse Width Modulation) Parameters

NOTE

- The PWM parameters are not available when **Sync Mode** is set to "off" and the **VCO 1 WAVE** is set to "Multi Saw."

- **VCO 1 PWM SRC (Pulse Width Modulation Source)**

Settings: Fixed, PEG, FEG, LFO 1, LFO 2, LFO 2 Phase, LFO 2 Fast, VCO 2

This determines the source wave which changes the VCO1's pulse width over time, thus determining the behavior of the pulse width. When this is set to "Fixed," there is no change in modulation over time.

- **VCO 1 PWM DEPTH (Pulse Width Modulation Depth)**

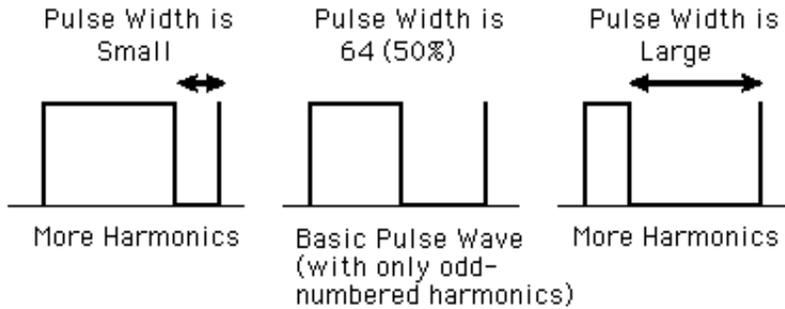
Range: -64 ... +63

This determines the amount of depth of the pulse width modulation of the VCO 1, based on the PWM Source wave parameter (above). Higher (positive) values produce a deeper modulation.

- **VCO 1 PWM PW (Pulse Width)**

Range: 0 ... 64 ... 127

This determines the width of the VCO 1 pulse wave. Higher (positive) values produce more harmonics, resulting in a fatter sound. In general, pulse width is used to control the pulse wave; however, the PLG150-AN can use PW with other waves as well, for a wider possible variety of sounds than usual.



- **VCO 1 Detune (Multi Saw wave only)**

Range: 0 ... 127

The **Multi Saw** wave combines multiple saw waves. Each of these individual waves can be detuned with respect to the others. This parameter determines the amount of pitch difference among the waves. Higher values produce a greater amount of detuning.

This parameter is available only when **SYNC** is set to "off" and the **VCO 1 WAVE** is set to "Multi Saw."

- **VCO 1 Mix (Multi Saw wave only)**

Range: 0 ... 127

The **Multi Saw** wave combines multiple saw waves. The levels of these individual waves are mixed together. This parameter determines the difference in volume among the waves. A value of "0" results in the output of the basic wave (the wave at normal pitch), while a value of "127" results in all waves having the same volume.

This parameter is available only when **SYNC** is set to "off" and the **VCO 1 WAVE** is set to "Multi Saw."

- **VCO 2 WAVE**

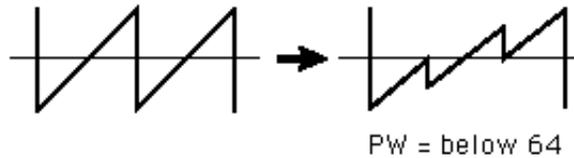
Settings: Saw, Pulse, Saw 2, Mix, Triangle, Sine

The Sine wave (in italics above) can only be selected by using the DATA DEC/INC buttons.

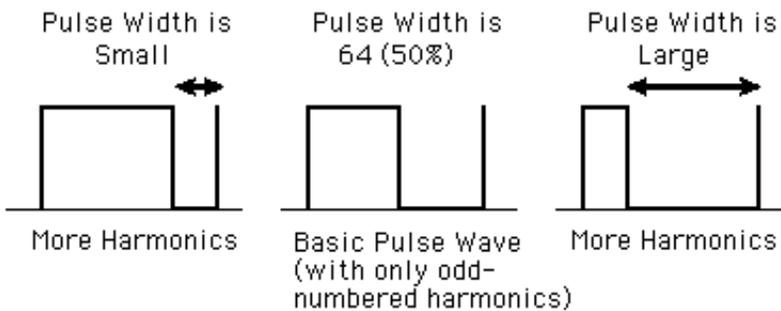
This determines the waveform for the VCO 1 oscillator.

Saw (Sawtooth)

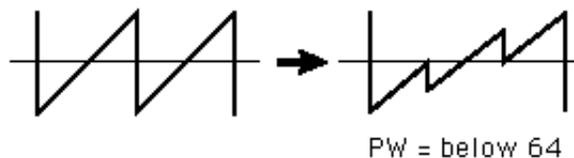
The Saw (sawtooth) wave derives its name from its shape, and is used to create a trumpet or violin sound. Since it contains all harmonics in the spectrum, it produces a full, rich sound. When used with the [Pulse Width](#) function, increasing the even harmonics can raise the pitch to a maximum of a full octave.

**Pulse**

The Pulse wave is used to make woodwind (clarinet-type) sounds. Its spectrum is similar to a sawtooth wave, but since every second (even-numbered) harmonic is missing, the waveform contains only odd-numbered harmonics when [Pulse Width](#) is set to "64".

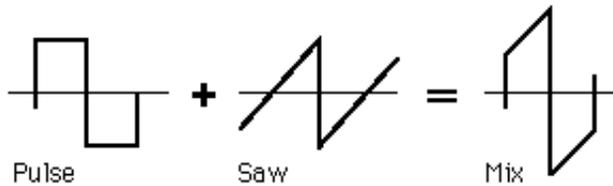
**Saw2 (Sawtooth2)**

The spectrum of the Saw2 wave is created by a sawtooth wave combined with a pulse wave, and therefore is slightly different than the Saw wave. When the [Pulse Width](#) is set to 64, the shape of the wave is the same as Saw. Even if you increase the even-numbered harmonics by the Pulse Width, the basic pitch remains the same.



Mix

The mix wave is formed by a combination of saw and pulse waves.

**Triangle**

This is a conventional triangle wave. When Triangle is selected, all of the VCO 2 PWM parameters are unavailable, and are replaced with the **X-MOD** parameters.

Sine

This is a conventional sine wave.

When Sine is selected, all of the VCO 2 PWM parameters are unavailable, and are replaced with the **X-MOD** parameters.

- **VCO 2 PITCH**
- **VCO 2 FINE**
- **VCO 2 EDGE**

These parameters are the same as those of VCO 1.

NOTE

- When the **VCO 2 Wave** is set to “Triangle” or “Sine,” the **VCO 2 EDGE** parameter has no effect.

VCO 2 PWM (Pulse Width Modulation) Parameters

NOTE

- The PWM parameters are not available when the **VCO 2 WAVE** is set to “Triangle” or “Sine.”
- **VCO 2 PWM SRC (Pulse Width Modulation Source)**
Settings: Fixed, PEG, FEG, LFO 1, LFO 2, LFO 2 Phase, LFO 2 Fast, VCO 1

NOTE

- Parameter settings in italics above can only be selected by using the DATA DEC/INC buttons.

With the exception of “VCO 1” (VCO 2 cannot be used to modulate itself!), these settings are the same as those of **VCO 1 PWM SRC**.

- **VCO 2 PWM DEPTH (Pulse Width Modulation Depth)**
- **VCO 2 PWM PW (Pulse Width)**

These parameters are the same as those of VCO 1.

NOTE

- When the **VCO 2 Wave** is set to “Triangle” or “Sine,” the VCO 2 PWM PW parameter has no effect.

X-MOD Parameters

The X-MOD (cross-modulation) parameters are available only when the **VCO 2 WAVE** is set to “Triangle” or “Sine.” Whereas the PWM parameters use a source to modulate the pulse width of the oscillator, X-MOD is similar to FM in that it modulates the frequency of the oscillator, generating a complex set of harmonics. The control source for the Depth of the modulation can be selected from: PEG, FEG, LFO 1, or LFO 2. The actual modulator for cross-modulation is fixed to VCO1.

NOTE

- The harmonics that X-MOD generates are different from those of FM because of the method used: FM modulates in a logarithmic fashion, while X-MOD modulates in a linear fashion.
- **X-MOD SRC (Cross-modulation Depth Control Source)**
Settings: Fixed, PEG, FEG, LFO 1, LFO 2
This determines the source wave which changes the Cross Modulation Depth over time. When this is set to “Fixed,” there is no change in modulation depth over time. This parameter is available only when the **VCO 2 WAVE** is set to “Triangle” or “Sine.”
- **X-MOD DEPTH**
Range: -64 ... +63
This determines the amount of depth of the cross-modulation of the VCO 2. Higher (positive) values produce a deeper modulation of the frequency. This parameter is available only when the **VCO 2 WAVE** is set to “Triangle” or “Sine.”

VCA Block

The VCA parameters give you control the overall volume or level of the AN voice.

- **VELOCITY (VCA Velocity Sensitivity)**

Range: -64 ... +63

This determines how the VCA (voice level) responds to key velocity. For positive values, playing the keys with greater strength results in higher volume. For negative values, the relationship is inverse: a softer key touch results in a higher volume. A setting of "0" results in no change in volume by playing strength.

To set this, click the VELOCITY button and highlight the desired value in the pop-up chart. When a value other than "0" is set, the VELOCITY lamp lights.

- **VOLUME**

Range: 0 ... 127

The VOLUME setting determines the overall output level from the VCA before the signal passes to the Effect block.

AEG (Amplitude Envelope Generator) Parameters

The AEG parameters allow you to shape the sound of the AN voice. In other words, it lets you set how the level of the voice changes over time.

- **AEG ATTACK (Amplitude EG Attack Time)**

Range: 0 ... 127

This determines the Attack Time of the AEG, or how long it takes for the sound to reach full volume when a note is played. Higher values produce a longer Attack time. (See illustration below.)

- **AEG DECAY (Amplitude EG Decay Time)**

Range: 0 ... 127

This determines the Decay Time of the EG, or how rapidly the sound dies out (or goes down to the Sustain Level) as a note is held. Higher values produce a longer Decay time. (See illustration below.)

- **AEG SUSTAIN (Amplitude EG Sustain Level)**

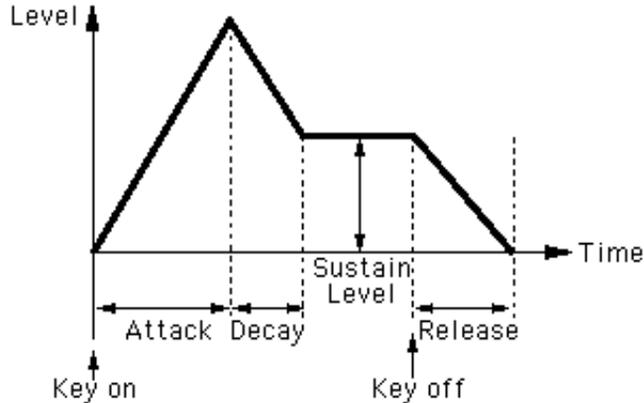
Range: 0 ... 127

This determines the level of sustain of the AEG, which is the level at which the volume will be maintained as long as the key is held. Higher values increase the Sustain level. (See illustration below.)

- **AEG RELEASE (Amplitude EG Release Time)**

Range: 0 ... 127

This determines the Release Time of the AEG, or how long the sound sustains after a note is released. Higher values increase the Release time. (See illustration below.)



DIST (Distortion) / EQ Block

The Distortion and EQ parameters give you further sonic control over the AN voice, letting you apply and adjust distortion, and make detailed equalization settings.

- [DIST / EQ DETAIL Page](#)

- **DIST DRIVE (Distortion Drive)**

Range: 0 ... 100

This determines the amount of distortion “drive” for the guitar amplifier simulation effect block. The higher the value, the greater the degree of distortion in the sound.

- **DIST DRY/WET (Distortion Dry/Wet Balance)**

Range: D63>W ... D=W ... D<63

This determines the level balance of the unprocessed (dry) original sound of the voice, and the distortion processed (wet) sound. A setting of D=W results in an equal balance of dry and wet sound. (In the display, “D” indicates “dry,” and “W” indicates “wet.”)

- **EQ LO (Low Frequency Gain)**

Range: -12 ... +12 (dB)

This determines the gain or level of the low frequency band. Positive values boost the level of the frequency and negative values attenuate it. (The specific frequency to be adjusted can be set with the [Low Freq.](#) parameter in the DETAIL page.)

- **EQ MID (Mid Frequency Gain)**

Range: -12 ... +12 (dB)

This determines the gain or level of the mid frequency band. Positive values boost the level of the frequency and negative values attenuate it. (The specific frequency to be adjusted can be set with the [Mid Freq.](#) parameter in the **DETAIL** page.)

- **EQ HI (High Frequency Gain)**

Range: -12 ... +12 (dB)

This determines the gain or level of the high frequency band. Positive values boost the level of the frequency and negative values attenuate it. (The specific frequency to be adjusted can be set with the [High Freq.](#) parameter in the **DETAIL** page.)

COMMON Parameters

- [COMMON DETAIL Page](#)

- **KEY.M (Key Assign Mode)**

Settings: POLY (polyphonic) , MONO (monophonic), LEGATO

This determines how the tone generator sounds in response to the MIDI input.

POLY

Tone generator is played polyphonically. The maximum simultaneous polyphony is 5 notes.

MONO

Tone generator is played monophonically. The maximum simultaneous polyphony is 1 note. This setting is good for creating fat and powerful bass and lead sounds.

LEGATO

Tone generator is played monophonically. The maximum simultaneous polyphony is 1 note. For this setting, successively played notes do not retrigger the PEG, FEG or AEG --- resulting in a smoother note-to-note sound.

NOTE

- This setting overrides the [Key Mode](#) setting. Even if it is set to "POLY," the voice will only play monophonically (with up to five voices sounding together) when [Unison Switch](#) is set to on.

- **UNISON (Unison Switch)**

Settings: ON, OFF

This determines whether the Unison mode is on or off. Setting this to on is an instant way to get a “fat” analog-like lead sound. When Unison is on, the selected voice is layered with slightly detuned copies of itself, and set to play monophonically (one note at a time). The amount of detuning can be set with the [Unison Detune](#) parameter (in the [DETAIL](#) page).

NOTE

- This setting overrides the [Key Mode](#) setting. Even if it is set to “POLY;” the voice will only play monophonically (with up to five voices sounding together) when Unison Switch is set to on.

- **MORPH (Morphing Switch)**

Settings: On, Off

This determines whether the [Morphing](#) function is on or off. Morphing allows you to crossfade between two different voices.

When using Morphing, make sure to make the proper settings in the [Morphing window](#). The Morphing voice must be different than the currently selected voice for Morphing to have an effect, and the appropriate MIDI controller must be selected.

Portamento Parameters

Portamento is a pitch change effect commonly employed by singers and instrumentalists to smoothly “glide” from one pitch to another. Portamento has been a common feature in synthesizers as well, and can be used subtly for a natural pitch glide, or can be used to produce wild special effects.

- **SW. (Portamento Switch)**

Settings: On, Off

This turns the Portamento effect on and off. The button’s lamp lights when Portamento is on.

- **TIME (Portamento Time)**

Range: 0 ... 127

This determines the time of the Portamento effect, or how long it takes to glide the pitch from one note to the next. Higher values result in a longer pitch glide time.

Setup Detail Parameter Window

This window is called up anytime you click on one of the DETAIL buttons in the main control panel window. (This includes all but the DETAIL buttons of the FREE EG and PATTERN GEN. sections, each of which have their own separate windows.)

■ Detail Parameter Tab

The screenshot shows the 'Setup Detail Parameter' window with the following settings:

- Detail Parameter Tab:** Selected.
- Common:**
 - Category: 22: Sq
 - Voice Name: Killer
 - Unison Detune: 32
 - Portamento Mode: Fingerd
- Distortion:**
 - Guitar Amp. Type: Stack
 - LPF: 5.0 kHz
 - Output Level: 60
- LFO:**
 - Assign Group: LFO1(All)
 - LFO1 Delay: 0
 - Key On Reset: Off
 - Sync Pmod: Both
- EQ:**
 - Low Freq.: 200 Hz
 - High Freq.: 5.0 kHz
 - Mid Freq.: 1.1 kHz
 - Mid Resonance: 1.0
- FM:**
 - Algorithm: Master
 - Src1 (FM Depth Ctrl): Fixed
 - Src2 (Modulator): VCO2 Frequency
 - Output Gain: +0 dB

Common Parameters

• Category

This is used with Voice Name below to give a custom name to your edited voice. The category is a two-letter code that indicates the basic instrument type of the voice (see chart below). Specifying the category makes it easier to recognize the application or use of each particular voice; it also makes it easy to organize your voices according to their character or application. Set this to "0: --" if you wish to leave the category blank. For a complete list of the category abbreviations and their descriptions, see the Voice List in the PLG150-AN Owner's Manual.

Category List

0:	--	No category
1:	Pf	Piano
2:	Cp	Chromatic Percussion
3:	Or	Organ
4:	Gt	Guitar
5:	Ba	Bass
6:	St	Strings/Orchestral
7:	En	Ensamble
8:	Br	Brass
9:	Rd	Reed
10:	Pi	Pipe
11:	Ld	Synth Lead
12:	Pd	Synth Pad
13:	Fx	Synth Effect
14:	Et	Ethnic
15:	Pc	Percussive
16:	Se	Sound effect
17:	Dr	Drums
18:	Sc	Synth Comp
19:	Vo	Vocal
20:	Co	Combination
21:	Wv	Material Wave
22:	Sq	Sequence

• Voice Name

This is used with Category above to give a custom name to your edited voice. Click on the box and type in the desired voice name from the computer keyboard.

NOTE

- Right-clicking on the box (on the Macintosh, click while holding the CONTROL key) calls up a set of basic text editing functions (Undo, Cut, Copy, Paste, Delete, Select All), along with the indicated keyboard shortcuts.

- **Unison Detune**

Range: 1 ... 32

When the **UNISON** switch is on, multiple sounds are played, with the pitch of each sound slightly detuned. Unison Detune adjusts the detuning of the VCO pitch in fine increments, letting you create an even thicker Unison sound by applying higher settings; however, be careful not to apply too much or you'll change the basic pitch of the voice.

NOTE

- You can also adjust the value of this parameter with the left and right mouse buttons. Click on the parameter box, then click the left button to decrease the value, or the right button to increase it.

- **Portamento Mode**

Settings:

When Key Mode is set to "POLY":

- Normal: Normal portamento play.
- Sustain Key: With this setting, the Hold tone (by a sustain pedal) is specified as the starting pitch of the portamento.

When Key Mode is set to "MONO" or "LEGATO":

- Full Time: Portamento is always enabled.
- Fingered: Portamento is only enabled by legato performance.

This determines the characteristics of the portamento (sometimes called glissando), or how the tone glides from one tone to the next through all the intermediate pitches, when the **Portamento Time** is set to a value other than "0". Available parameters depend on the **Key Mode** setting.

To enable the Portamento function, press the **PORTAMENTO switch (SW.)** on the main control panel. If the **Portamento Time** parameter is set to "0", Portamento will have no effect.

Distortion Parameters

The Distortion effect lets you create a wide variety of distortion sounds, from subtle, warm overdrive-type sounds to very heavy, metallic distortion.

NOTE

- Keep in mind that many of these parameters (as well as the ones on the main control panel) are interrelated, and you may not hear any distortion effect unless they are set to appropriate values. This is especially true of **Drive**, **Dry/Wet Balance**, and **Output Level**.

- **Guitar Amp. Type**

Settings: Off, Stack, Combo, Tube

This determines the type of guitar amplifier simulated by the Distortion effect. Each produces a slightly different distortion sound, recreating the characteristics of an actual amplifier. "Stack" simulates a separate amp and speaker setup, "Combo" simulates a single cabinet transistor amp and speaker, and "Tube" simulates a single cabinet tube amp and speaker. When this is set to "Off," some of the guitar amplifier simulation effect is cancelled (however, **Distortion Drive** and LPF are still applied to the sound).

- **LPF**

Range: 1.0 kHz ... 18.0 kHz, Thru

This determines the frequency of the low pass filter that is applied to the distortion sound. Depending on the [Guitar Amp. Type](#) setting, this parameter can be used to “fatten” the sound or make it piercing and brittle. When this is set to “Thru,” no filtering is applied to the distortion sound.

- **Output Level**

Range: 0 ... 100

This determines the output volume of the distortion sound. Keep in mind that this may not have any effect unless the [Dry/Wet Balance](#) is set to an appropriate value.

LFO Parameters

- **Assign Group**

Settings:

LFO1 (All)

LFO1 (VCO1, VCO2, VCA) - LFO2 (VCF)

LFO1 (VCO1, VCO2) - LFO2 (VCA, VCF)

LFO1 (VCO1) - LFO2 (VCO2, VCA, VCF)

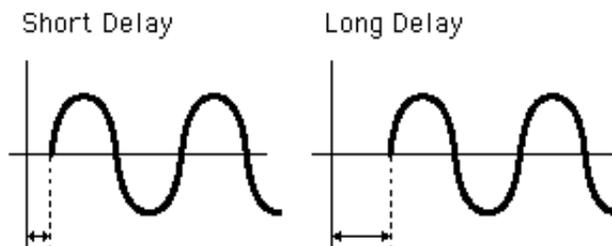
LFO2 (All)

This determines the destination choices for the LFO 1 and LFO 2 modulation. When one of the “(All)” settings is selected, all of the available destinations (VCO1, VCO2, VCA, and VCF) are grouped to the selected LFO, 1 or 2. The LFO blocks in the main panel control automatically change when this parameter is set. The basic parameters of [Wave](#) and [Speed](#) (as well as the Detail page) remain intact for both LFOs, no matter what setting is made here.

- **LFO 1 Delay**

Range: 0 ... 127

The LFO 1 Delay setting determines the delay time of the modulation. Lower values result in shorter LFO 1 Delay times, and higher values result in longer Delay times.



- **Key On Reset**

Settings:

Off: LFO 1 and LFO 2 do not reset, but modulate continuously.

On: LFO 1 and LFO 2 reset every time a key is pressed.

This determines the start point of the LFO 1 and LFO 2 cycle.

- **Sync Pmod Sw.**

Settings: Master, Slave, Both

The Sync Pitch Modulation Switch setting determines which oscillator (master, slave, or both) is modulated by the LFO 1 or LFO 2. Depth rate is determined by the [LFO1/LFO2 VCO1](#) setting. This parameter is effective when the [SYNC MODE](#) is set to "VCO1 Master > Slave."

EQ Parameters

- **Low Freq. (Low Frequency)**

Range: 32 Hz ... 2.0 kHz

This determines the frequency which is boosted or cut with the [EQ LO](#) parameter in the main control panel.

- **High Freq. (High Frequency)**

Range: 500 Hz ... 16.0 kHz

This determines the frequency which is boosted or cut with the [EQ HI](#) parameter in the main control panel.

- **Mid Freq. (Mid Frequency)**

Range: 100 Hz ... 10.0 kHz

This determines the frequency which is boosted or cut with the [EQ MID](#) parameter in the main control panel.

- **Mid Resonance**

Range: 1.0 ... 12.0

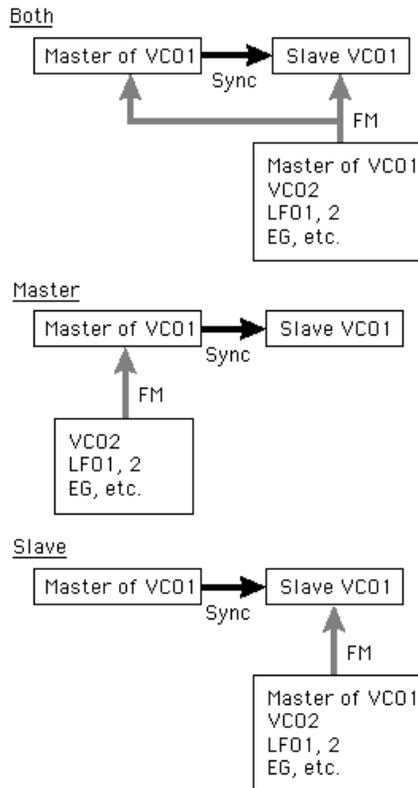
This determines the width of the frequency band which is boosted or cut with the [EQ MID](#) parameter in the main panel. The central frequency is set with the Mid Frequency parameter (above). Higher values result in a narrower band width.

FM Parameters

- **Algorithm**

Settings: Both, Master, Slave

This determines how the two VCO1 oscillators (master and slave) are connected in relation to the FM signal. There are three types of connections, or “algorithms,” as shown in the diagrams below.



Both

FM is applied to both master and Slave oscillators.

Master

FM is applied to the master oscillator.

Slave

FM is applied to the slave oscillator. When this is set to “Slave,” the overall pitch is determined by the [Sync Pitch](#) setting. This allows you to set the correct pitch for the overall sound, even when the [FM Depth](#) is set to extreme values.

This parameter is effective when the SYNC MODE is set to “VCO1 Master > Slave.”

- **Src1 (FM Depth Ctrl)**

Settings: Fixed, PEG, FEG, LFO1, LFO2

This determines the modulation source which controls the **FM Depth**. When this is set to "Fixed," there is no change in modulation over time.

- **Src2 (Modulator)**

Settings: VCO2 Frequency, VCO1, VCO1 Sub Osc. (sub oscillator), PEG, FEG, LFO1, LFO2, VCO2 Output

This determines the source wave which modulates the VCO1 wave.

NOTE

- For the most part, the above settings should be self-explanatory. If necessary, refer to the relevant sections (for example, **VCO1**, **PEG**, **FEG**, **LFO1/2**). The other settings are explained below.

VCO2 Frequency : This modulation uses a sine wave which is set to the same frequency as that of the VCO 2's pitch.

VCO1 Sub Osc. : This modulation uses a wave of either half or double the frequency of the VCO 1 (depending on the selected VCO 1 waveform).

VCO2 Output : This uses the actual VCO 2 output waveform for modulation, resulting in an FM synthesis-like sound.

Output Gain

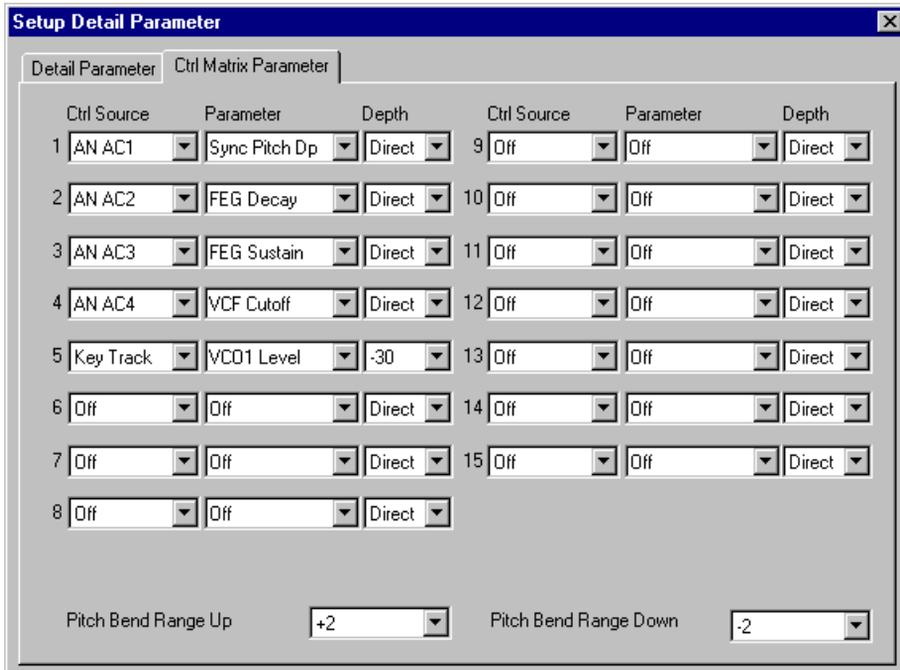
Settings: +0 dB, +6 dB, +12 dB

This determines the overall level gain of the output signal of the selected voice. Use this parameter together with the hardware VOLUME control on the tone generator to set the desired voice level.

CAUTION!

- Be careful when using the higher settings, since you may inadvertently damage the connected audio equipment (and your ears!) if the voice is too loud.

■ Ctrl (Control) Matrix Parameter Tab



Many of the PLG150-AN's parameters can be controlled in real time. The Control Matrix provides an extraordinarily comprehensive and flexible way to control these parameters. Up to 15 different controllers can be used simultaneously to control 15 separate parameters. The particular physical controllers used depend on the connected MIDI instrument. Among the more commonly used controllers are: velocity, modulation wheel, after touch, and foot controller. Since any of the MIDI Control Change numbers can be used for control sources, you can set up highly complex routings and automated sound changes by recording these Control Change messages to a host application.

The Control Matrix settings determine which "source" (i.e., MIDI Control Change numbers, Modulation Wheel, Foot Controller, etc.) is used to control which PLG150-AN "destination" parameter (i.e., VCF Cutoff, Resonance, FEG Depth, etc.).

This gives you the freedom to configure a completely different set of sources and destination parameters for each voice. You can, for example, configure the AN1x to use After Touch to apply vibrato, or the Modulation Wheel to change the resonance while you play, determine the range for both Pitch Bend up and down, and much more.

The Control Matrix provides 15 sets of control setup parameters. The Depth of the controller effect can also be set independently for each of the 15 sets.

- **Ctrl (Control) Source**

Settings: Off, CC No. 1 - 95, After Touch, Pitch Bend, Key Track, Velocity, Key Random, Mod Wheel, Foot Vol, Foot Ctrl, Foot Sw, Ribbon X, Ribbon Z, AN AC 1 - 8

This determines which MIDI controller is assigned to control the corresponding [Parameter](#). You can set the source by Control Change number or by controller name, as described below. Special Key Track and Key Random controllers are included for added flexibility.

Off

No controller assigned.

CC No. 1 - 95

Selects the Source controller according to Control Change number, when received by incoming MIDI messages.

After Touch

For controlling with keyboard After Touch.

Pitch Bend

For controlling with a Pitch Bend wheel.

Key Track

For controlling with note number messages generated by pressing the keys. Higher keys result in higher controller values.

Velocity

For controlling with keyboard velocity, or the strength with which you strike the keys.

Key Random

For this setting, a random note number messages is automatically generated for each key you press, or for each MIDI note message received.

Mod Wheel

For controlling with the Modulation Wheel, and/or by incoming MIDI messages of Control Change number 1.

Foot Volume

For controlling with a connected Foot Volume controller, and/or by incoming MIDI messages of Control Change number 7.

Foot Control

For controlling with a connected foot controller, and/or by incoming MIDI messages of Control Change number 4.

Footswitch

For controlling with a connected Footswitch, and/or by incoming MIDI messages of Control Change number 64.

Ribbon Controller-X (for AN1x data compatibility)

For controlling with X-axis motion on a ribbon controller (left-right), and/or by incoming MIDI messages of Control Change number 13. When Ribbon Controller-X is used, the control change (default of 13) is treated as a "Center-Base-Controller" (center = 64).

Ribbon Controller-Z (for AN1x data compatibility)

For controlling with Z-axis motion on a ribbon controller (push-release), and/or by incoming MIDI messages of Control Change number 12.

AN AC 1 - 8

For controlling with a specified Assignable Controller. (Refer to the instructions on using Assignable Controllers in the owner's manual of your particular tone generator.

NOTE

- The available Source for assignment may differ, depending on the selected Parameter. For details of available parameters, see the table of Control Matrix parameters in the PLG150-AN Owner's Manual.
- You cannot assign the same Source controller and Parameter to more than one set. If you attempt to do so, lower-numbered sets will take priority.
- The control change numbers for AN AC 1-4 can be set with the AN Native parameters (on the panel of the "mother" device). Each Preset Voice has four pre-assigned control change numbers using this function (refer to the AN Voice List in the PLG150-AN Owner's Manual).
- The Control Change numbers for the Mod Wheel, Foot Volume, Foot Control, Footswitch, Ribbon Controller-X, Ribbon Controller-Z and AN AC 5-8 can be set from the AN1x System Parameters (refer to the MIDI Data Format section in the PLG150-AN Owner's Manual).

- **Parameter**

Settings:

For a complete list of the Control Matrix's Parameters, see the PLG150-AN Owner's Manual.

When this is set to "Off," the assigned controller has no effect.

- **Depth**

Settings:

The available settings may differ, depending on the selected Parameter. For details, see the table of Control Matrix parameters in the PLG150-AN Owner's Manual.

This determines the control range of the Source controller. When this is set to "Direct," you can directly adjust/edit the parameter assigned to the controller within its original range.

- **Pitch Bend Range Up**

- **Pitch Bend Range Down**

Range: -24 ... +24

These two parameters let you set independently set the Pitch Bend Range for up and down motion of the pitch bend wheel on a connected MIDI keyboard. In other words, this allows you to set pitch bend so that moving the wheel up can make a greater (or lesser) pitch change than moving the wheel down.

FREE EG Window

The Free EG function gives you four independent tracks to which you can record complex real-time parameter changes, over a specified length of time, either in measures or seconds.

In this window, you can draw a custom Free EG “curve” for each track that controls a single selectable parameter (such as filter, resonance, LFO, etc.) over time. Four of these curves — each affecting a different parameter — can be played back automatically by simply playing the voice. A variety of drawing and editing tools are available for creating unique, continuous parameter changes that would be impossible to achieve with conventional EGs.

Naturally, Free EG parameters and data are stored as voice data, allowing each voice to have its own Free EG settings.



Individual Track Parameters

These parameters apply to each individual track (1 - 4) of the Free EG function. Each track can have its own EG “curve” and parameter. When a voice is played, all Free EG tracks playback simultaneously, controlling the assigned parameters in real time.

- **EDIT SELECT**

Settings: Track 1, Track 2, Track 3, Track 4

This determines the particular track for editing.

- **TRACK PARAMETER Switch**

Settings: ON, OFF

This determines whether the specified track is active (ON) or not (OFF). This must be set to “ON” for the Free EG of the track to have any effect.

When this is set to “ON,” two pink dotted lines appear in the Free EG display. These represent the range over which the selected parameter (set in [Track Parameter](#) below) can be changed by the Free EG curve. The position of these two lines depends on the particular parameter and its current value or setting. A Free EG curve can extend above or below these lines; however, the portions that extend will have no further effect on the parameter (beyond the values represented by the lines).

- **TRACK PARAMETER**

For a complete list of the Control Matrix’s Parameters, see the PLG150-AN Owner’s Manual.

This determines which PLG150-AN parameter will be played by the EG “curve” in the selected Free EG track. Only one parameter can be selected for a track.

- **VALUE Display**

This shows the current value or setting for the selected Track Parameter. Keep in mind that this is only a display indication; the value/setting cannot be changed here, but must be changed from the appropriate parameter in the main control panel window (or the Details page).

- **TRACK Display Buttons 1 - 4**

Click on each of these to display the Free EG curves of two or more tracks simultaneously. Each track’s curve is shown in a different color, making it easy to distinguish between the tracks.

TRACK COMMON PARAMETERS

- **LENGTH**

Settings:**1/2, 1, 3/2, 2, 3, 4, 6, 8 bars (number of measures)****1.0 ... 16.0 sec (seconds)**

The Length setting determines the time for recording and play of the Free EG sequence. There are two Length types, including length determined by number of measures (bars) or by absolute time (seconds).

NOTE

- **Setting the Length to a number of bars automatically causes the Free EG to be affected by [Tempo](#).**

- **TRIGGER**

Settings: Free, MIDI In Notes, All Notes

This determines how the Free EG track playback is triggered, as described below.

Free

After selecting a voice, the first key pressed on the keyboard triggers the Free EG.

MIDI in Notes

The Free EG is triggered by a note on message from a connected MIDI instrument or sequencer.

All Notes

The Free EG is triggered by either a Note On message from a connected MIDI instrument or sequencer, or from the Arpeggio or Step Sequencer.

- **LOOP TYPE**

Settings: Off, Forward, Forward Half, Alternate, Alternate Half

This determines the type of loop for play of the Free EG sequence, as described below.

Off

The Free EG sequence plays once but does not loop. The parameter settings at the end of the Free EG sequence remain in effect.

Forward

The Free EG sequence loops from start to end.

Forward Half

The Free EG sequence loops from the middle to the end.

Alternate

The Free EG sequence loops from start to end, then end to start.

Alternate Half

The Free EG sequence loops from middle to end, then end to middle.

- **KEY TRACK**

Settings: -64 ... +63

The Key Track setting determines the length of the Free EG in relation to notes played on a connected keyboard, using C3 as the basic note length. When set to "0," the length will be the same for all notes across the entire keyboard. For negative values, the Free EG length decreases when you play in the lower register; for positive values, the Free EG length decreases when you play in the higher register.

- **TEMPO**

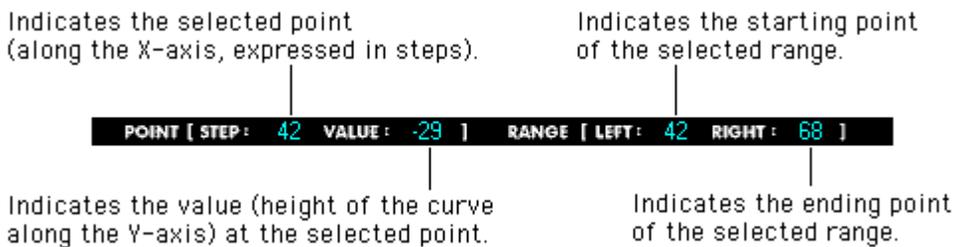
Range: MIDI, 40 - 240 bpm (beats per minute)

This determines the tempo or speed at which the selected Free EG track plays back. When this is set to "MIDI," and [Length](#) is set to a number of measures (bars), the EG playback tempo is synchronized to that of the connected MIDI device.

NOTE

- The Tempo setting also affects the Arpeggio and Step Sequencer patterns.

Edit Tools



The toolbar at the left of the Free EG window contains the Edit tools. They are divided into two basic types: the Drawing tools (which include special wave tools) and the Transform tools.

Using the Drawing Tools

1) Click on the desired Drawing tool.

For details on each tool, refer to the descriptions in step #2 below.

2) Hold down the left mouse button at the desired start point, and simultaneously drag the mouse to draw the curve. Release the button to stop drawing.

For the pencil tool, the curve is immediately changed. For the other tools, a "ghost" curve temporarily appears (along with the original one) while you are drawing to indicate the new curve. Release the mouse button, and after a slight pause, the newly drawn curve replaces the old one. However, for any area left undrawn, the original curve remains.

pencil

The "pencil" tool lets you draw the desired curve in freehand.

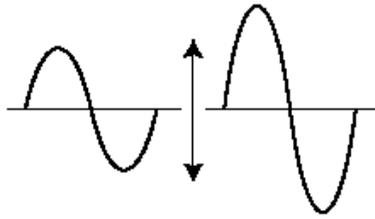
straight

The "straight" tool lets you draw a perfectly straight line by "pulling" the cursor away from the starting point.

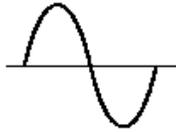
pulse
triangle
sine

These three wave tools let you easily draw the respective waveforms. The example illustrations below (using the sine wave) show how dragging the mouse affects the wave.

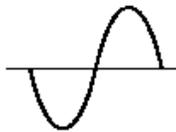
- Dragging the mouse up or down increases the amplitude of the wave, or the degree to which the parameter value will change.



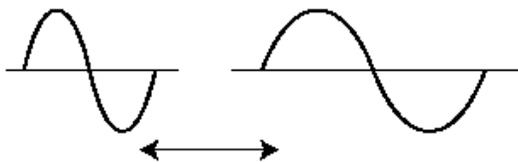
- Dragging up creates a waveform of normal phase.



- Dragging down reverses the phase by 180 degrees.



- Dragging to the right decreases the frequency, or makes the parameter value change slower, while dragging to the left increases the frequency.



Using the Transform Tools

1) Click on the “cursor” button.

2) Highlight (define) the area you wish to transform.

Move the cursor to the beginning point of the desired area, then hold down the left mouse button and drag the mouse to the right, highlighting or defining the area to be changed. Release the button to set the highlight end point.

NOTE

- The Transform tools are “ghosted” unless an area is defined.

3) Click on the desired Transform tool.

For the “smooth” and “random” tools, clicking on the respective button starts the operation. After a short pause, the Free EG curve changes according to the transform.

smooth

As its name suggests, this transform “smooths” jagged edges in the curve. Use this repeatedly to make the edges as round as desired.

random

This transform randomly assigns different values at successive points in the curve. To a certain extent, this is the opposite of “smooth” above, since it produces jagged jumps and edges in the curve.

4) If using “scale” or “move,” use the mouse to adjust the setting as desired.

For the “scale” and “move” tools, hold down the left mouse button and drag the mouse in the appropriate direction, releasing it at the desired point.

scale

This useful tool lets you compress or expand the overall “dynamic range” of the curve. For example, if the changes in the Free EG are too sudden or dramatic, use this to compress the curve and make the changes more subtle. Dragging away from the central axis expands the range; dragging toward the axis compresses it. Dragging up maintains the original phase; dragging it down reverses the phase by 180 degrees.

move

This is a combination copy-and-paste operation, allowing you to “grab” a defined section of the curve and move it to another place. The copied section can be moved freely in any direction, and it replaces the original curve at the destination.

PATTERN GENERATOR Window

The Pattern Generator window contains the controls for the Arpeggio and Step Sequencer. These two powerful features let you trigger complex patterns in real time, at the press of a key.

The Arpeggio lets you play perfect arpeggiated chords at the simple press of a key. You can have the Arpeggio play across the entire keyboard, or set it so that your left hand triggers the arpeggio patterns, while you play the voice normally with your right hand. The Arpeggio features 30 different patterns to choose from, including Up, Down, and Up/Down across one or more octaves, plus various special patterns including Techno, House, Random, and more.

The Step Sequencer lets you quickly and easily create sophisticated looped patterns. It's also highly interactive, since it can be triggered from the keyboard in a variety of ways, and can be used with the various real-time controls of the PLG150-AN. Each individual step event (Note, Velocity, Gate Time, and Control Change) can be accessed and edited by a specific "panel knob," over a maximum of 16 steps. The Step Sequencer features extensive memory as well, letting you save one sequence pattern with each voice (128 total), plus have access to 128 User Patterns.

Both the Arpeggio and the Step Sequencer share a set of "Common" parameters for added flexibility and control. These include a Hold control that keeps the pattern running, even after you release the keys, plus other global controls that give you detailed control over the "feel" of the arpeggio or sequence pattern.



COMMON Block

- **ON/OFF**

Settings: On, Off

This turns the Pattern Generator on and off. The lamp lights when the Pattern Generator is on.

- **HOLD**

Settings: On, Off

This determines how the Pattern Generator responds to the pressing and releasing of keys. When this is set to “on” (the lamp lights), the Arpeggio or Sequencer pattern continues playing after releasing the keys. When this is set to “off,” the Arpeggio will stop when you release the keys. For more information on using with the Step Sequencer, see [HOLD MODE](#). (This control is the same as the [HOLD button](#) in the main control panel.)

HINT

- Arpeggio Hold is handy when trying out different Arpeggio [Types](#) or [Subdivide](#) settings, and is literally indispensable for tweaking the tone generator parameters for your arpeggios with the [Controllers](#).

- **SPLIT POINT**

Range: C-2 ... G8

The Split Point setting effectively “splits” the keyboard into left and right sections for the Pattern Generator feature, by determining the note that divides the two sections. This allows you to trigger an arpeggio or sequence pattern with your left hand and play normally with your right hand in real time, while the pattern is playing back. The use of a “split” keyboard is also affected by the [Keyboard Mode](#) setting.

Clicking on the SPLIT POINT value window displays the pop-up note name chart (C-2 ... C8). Click the desired note name to change the Split Point.

- **TEMPO**

Settings: MIDI, 40 ... 240

The Tempo setting determines the tempo for the PLG150-AN's internal clock in beats per minute (BPM), between a range of 40 and 240 BPM. The Tempo setting controls both Arpeggio and Step Sequencer playback.

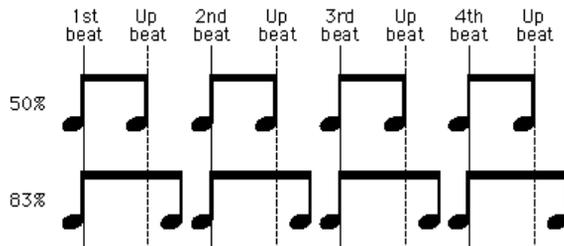
NOTE

- When Tempo is set to “MIDI,” the PLG150-AN's clock can be controlled by the clock of an external MIDI device such as a music sequencer, connected to the MIDI [IN] terminal.
- When the [Free EG Length](#) parameter is set to one of the “bar” values, the Free EG sequence will be synchronized with the Tempo set here.

- **SWING**

Settings: 50 ... 83%

The Swing parameter lets you apply a Swing rate to the Step Sequencer pattern to slightly shift certain beats in order to create a “swing” feel. (Swing is not available for the Arpeggio.) A setting of “50%” produces no Swing and “83%” produces maximum Swing. For information about how the Swing levels affect the rhythm of the pattern, see the illustration below.



- **VELOCITY**

Settings: R.time (Real-time), 1 ... 200%

This determines the ratio between the lower and higher velocity values of the Arpeggio or Step Sequencer pattern, over a range between 1% and 200%. A setting of “100%” maintains the original velocity relationship between the notes. Lower values adjust velocities downward at playback, and higher values adjust velocities upward at playback. A setting of “R.time” (Real-time) will cause the velocity values of the pattern to be determined by the velocity at which you play the keyboard, in relation to the [VCA Velocity Sensitivity](#) and [FEG Velocity Sensitivity](#) setting.

- **GATE TM (Gate Time)**

Settings: 1 ... 200%

This is an offset control and determines the note length of the notes of the Step Sequencer, making all notes either shorter or longer, as a percentage of the original. (Gate Time is not available for the Arpeggio.) This lets you, for example, set the note to play staccato, so that its sound switches off well before its step time is over. Or you can have the note hold right up to the start of the subsequent step so that it slurs (legato) into the next note. A setting of “100%” maintains the original relationship between notes. Lower values decrease the Gate Time, and higher values increase it.

NOTE

- When the combined value of any individual note’s Gate Time (as set from the [Gate Time Bank](#) knobs) and the offset Gate Time (set here) exceeds 100%, the note is played legato.

ARPEGGIO Block

The Arpeggio parameters only are in effect when the **ARPEGGIO switch** (in the main control panel) is turned on. Also, in the Pattern Generator Window, the **ARPEGGIO button** should be clicked so that the Arpeggio is selected. (You should also make sure that the ON/OFF switch in the COMMON block is on.)

• TYPE

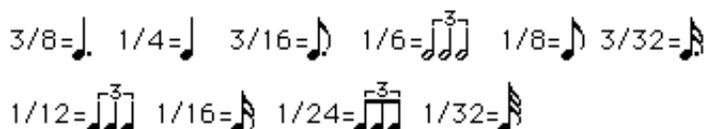
Settings:

A total of 30 types are available. For a complete list of the Arpeggio Types, see the PLG150-AN Owner's Manual.

This determines the type of Arpeggio pattern.

• SUBDIVIDE

Settings:



This determines the timing subdivision (resolution) value for the Arpeggio pattern. This function supports a wide variety of note values, including triplets.

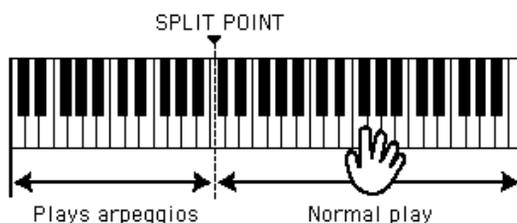
• KEYBOARD MODE

Settings: Chord, Chord & Normal

The Keyboard Mode setting designates how the Arpeggio patterns respond to notes played on the MIDI keyboard (as described below).

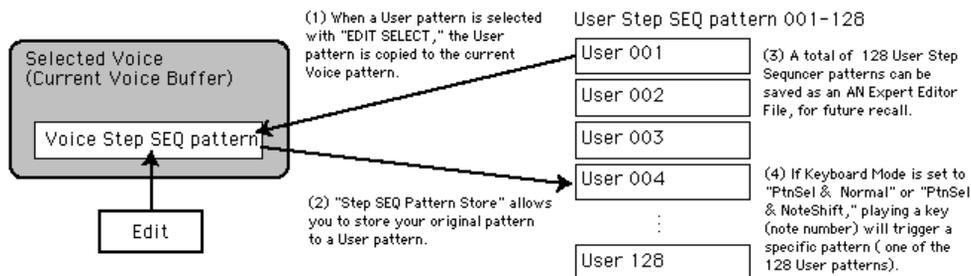
Chord: Arpeggiated chords can be played across the entire keyboard.

Chord & Normal: Arpeggiated chords can be played by keys to the left of the current **Split Point**, and you can play normally to the right.



STEP SEQ (Step Sequencer)

The Step Sequencer parameters only are in effect when the **SEQ switch** (in the main control panel) is turned on. Also, in the Pattern Generator Window, the **STEP SEQ button** should be clicked so that the Step Sequencer is selected.



Pattern Common Parameters (for both Voice Pattern and User Pattern)

- **KEYBOARD MODE**

Settings: Normal, NoteShift & Normal, PtnSel & Normal, PtnSel & NoteShift

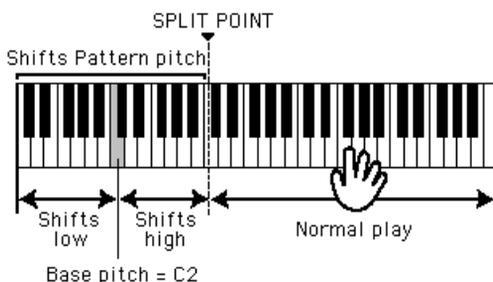
The Keyboard Mode setting designates how the Step Sequencer patterns respond to notes played on the MIDI keyboard (as described below).

Normal

For triggering the Voice Pattern of the currently selected voice at its base pitch from any key on the keyboard, and playing the voice normally across the keyboard. If Hold is set to "off," then the pattern will start each time you press a key.

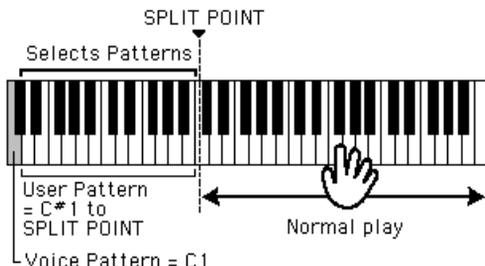
NoteShift & Normal

Playing a key to the left of the **Split Point** will shift the pitch of the pattern accordingly, and playing keys to the right of the Split Point will play notes normally, without affecting the sequence. For example, if the Split Point is set to C3, then you can shift the pitch of the sequencer pattern with C1 ... B2, with C2 as the base pitch, and play normal notes to the right.

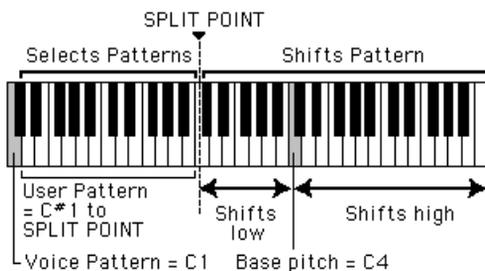


PtnSel & Normal (Pattern Select & Normal)

Playing a key to the left of the [Split Point](#) will trigger (“select”) a specific User Pattern, and playing keys to the right of the Split Point will play notes normally, without affecting the sequence. For example, if the Split Point is set to C3, then C1 plays the Voice Pattern for the selected voice, and 23 different User Patterns can be selected by playing keys C#1 ... B2.

**PtnSel & NoteShift (Pattern Select & Note Shift)**

Playing a key to the left of the [Split Point](#) will trigger (“select”) a specific User Pattern, and playing keys to the right of the Split Point will shift the pitch of the selected pattern accordingly. For example, if the Split Point is set to C3, then C1 plays the Voice Pattern for the selected voice, and 23 different User Patterns can be selected by pressing keys C#1 ... B2.



For information about assigning the User Patterns to the keys, see [PATTERN ASSIGN](#).

- **HOLD MODE**

Settings: Off, Mode 1, Mode 2

This determines the Hold setting for the Step Sequencer. The Pattern Hold function causes the sequence pattern to continue playing after releasing the keys (as described below). Selecting “Mode 1” or “Mode 2” automatically sets Hold to on.

Off

The pattern stops after the keys are released.

Mode 1

A pattern will be triggered every time a key is pressed.

Mode 2

A pattern will be triggered after the current sequence finishes, even if you press a key during the middle of the current sequence.

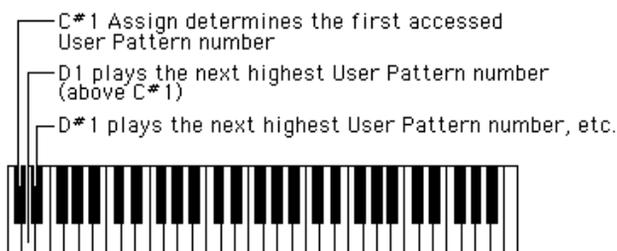
- **PATTERN ASSIGN (C#1)**

Settings: User 001 ... User 128

This determines the User pattern number that will be assigned to the C#1 key on the keyboard (or the equivalent MIDI note number).

The key C1 is used to trigger the voice pattern (the pattern stored with the current voice). Keys C#1 and above are used to select the User patterns. C#1 is always the base note assignment for the first User Pattern to be selected. As shown in the illustration below, if “Usr001” (User 001) is assigned to C#1, then pressing C#1 selects User Pattern 001, pressing D1 selects Pattern 002, pressing D#1 selects Pattern 003, and so on. The User Patterns are always selected in ascending order according to pattern number (001 - 128).

Pattern Assign lets you “shift” the starting pattern number. For example, if you assign “Usr025” to C#1, then pressing C#1 selects User Pattern 025, pressing D1 selects Pattern 026, pressing D#1 selects Pattern 027, and so on.



Individual Pattern Parameters

• EDIT SELECT

Range: User 001 ... User 128

This lets you select the User Pattern for editing. Clicking this parameter displays the pop-up value list; click on the desired User number. Once you've edited a pattern to your satisfaction, you should store it to memory using the **STORE** function.

NOTE

- The User pattern selected here is loaded to a Voice pattern. (Storing the voice, stores the pattern to a User voice.)
- Each time the Pattern Generator window is opened, this is reset to "Voice."

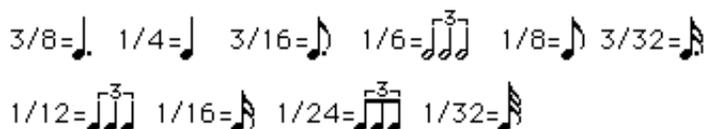
• STEP LENGTH

Settings: 1 ... 16 (Steps)

This determines the length of the sequence pattern based on number of steps. A single step is equivalent to one note; using this with the **Base Unit** setting, you can also select odd-numbered steps to create odd-numbered beats (such as setting the Length to "3" for 3/4-time, or to "5" for 5/4-time), as well as create completely unconventional rhythms.

• BASE UNIT

Settings:



This determines the timing resolution for the sequence pattern. This, together with the current **Tempo** setting, determines the interval between steps.

• LOOP TYPE

Settings: Forward, Backward, Alternate A, Alternate B

The Loop Type parameter lets you determine the type of loop cycle for the sequence pattern. The pattern always loops, and you can designate one of four ways for it to do so (as described below).

Forward

The pattern loops from first step to last repeatedly.

Backward

The pattern loops from last step to first repeatedly.

Alternate A

The pattern plays from first step to last (forward), then from last step to first (backward), then loops in this manner repeatedly (e.g., 1-2-3-4-4-3-2-1-1-etc.).

Alternate B

The pattern plays from first step to last (forward), then reverses starting from the next to last step, then loops in this manner repeatedly (e.g., 1-2-3-4-3-2-1-2-3-4-3- etc.).

• STORE

The Store function allows you to store your original Step Sequencer patterns to one of the User memory locations for future recall. A maximum of 128 User Patterns can be stored.

NOTE

- When this operation is executed, the stored User Pattern bulk data is transmitted to the PLG150-AN.
- User patterns can be stored with User voice data as AN Expert Data file (***.ANS).
- If the pattern is not stored as a User pattern, it will be stored as a Voice pattern to a User voice (with the Voice Store function in the main control panel).
- The User Pattern data of the PLG150-AN is lost when the “mother” device is turned off. In order to store User patterns on a Modular Synthesis Plug-in System compatible instrument that have been edited/created with the computer-based AN Expert Editor (or with the compatible instrument itself), you’ll need to use an external memory device, such as a memory card. For details, refer to the owner’s manual of your Modular Synthesis Plug-in System compatible instrument.

1) Click the **STORE** button.

2) From the **Pattern Store** dialog box, click the desired **User number (001 ... 128)**.

3) Click **“OK”** to execute the operation.

• NOTE NO. (Note Number) Bank

Range: C-2 ... G8 (MIDI note numbers 0 ... 127)

This bank of 16 virtual “knobs” lets you set the note number for each step of the Step Sequencer pattern. To set the note, adjust the parameter normally by “turning” the appropriate knob, or click on the value window above the knob to call up the pop-up value list, and click the desired note number. Keep in mind that if you use one of the “Note Shift” settings (in [Keyboard Mode](#)), the actual note is shifted as you play the MIDI keyboard.

• VELOCITY Bank

Range: Rest, 1 ... 127

This bank of 16 virtual “knobs” lets you set the note velocity for each step of the Step Sequencer pattern. To set the velocity, adjust the parameter normally by “turning” the appropriate knob, or move the cursor to the value window above the knob and use the right/left mouse buttons to step up or down through the available values, or enter the value directly from the computer keyboard. When set to “Rest,” a rest (no sound) is inserted for the step. Keep in mind that the final velocity of the entire pattern is also determined by the Common [VELOCITY](#) control.

• GATE TIME Bank

Range: 1 ... 200%

This bank of 16 virtual “knobs” lets you set the gate time (or note length) for each step of the Step Sequencer pattern. To set the gate time, adjust the parameter normally by “turning” the appropriate knob, or move the cursor to the value window above the knob and use the right/left mouse buttons to step up or down through the available, or enter the value directly from the computer keyboard. Keep in mind that the final gate time of all the notes in the pattern is also determined by the Common [Gate Time](#) control.

- **CTRL CHANGE (Control Change) Bank**

Range: 1 ... 200%

This bank of 16 virtual “knobs” lets you set the Control Change value (for the currently set [Control Change Number](#) below) for each step of the Step Sequencer pattern. This determines the depth of the Control Change effect. For example, if the Control Change Number is set to 74 (Brightness, VCF Cutoff), the value here determines the tone or timbre of the note.

To set the Control Change value, adjust the parameter normally by “turning” the appropriate knob, or move the cursor to the value window above the knob and use the right/left mouse buttons to step up or down through the available values, or enter the value directly from the computer keyboard.

NOTE

- The [Control Change Number](#) parameter must be set to an appropriate value for Control Change to have any effect. Also, use the [Control Matrix](#) function along with this to shape the sound in a variety of interesting and complex ways.

- **CTRL CHANGE NO. (Control Change Number)**

Settings: Off, 1... 95 (Control Change Numbers 1 ... 95), AT (After Touch)

The Control Number Change setting determines the type of MIDI Control Change which can be output upon sequencer play. To set this, click on the CTRL CHANGE NO. button to call up the pop-up value list, and click the desired setting. Once the Control Number is set, the [Control Change](#) value can be set for each note with the knobs. For example, if you set the Control Number to 74 (Brightness, VCF Cutoff), selecting a different Control Change event value setting at each step lets you change the tone or timbre of each note with the Control Change value above. The set Control Change Number value appears to the left of the button.

Refer to the list of [control change numbers](#) and their commonly used controllers. For more information about MIDI and MIDI Control Change messages, see the PLG150-AN Owner’s Manual.

NOTE

<Editing Shortcut for Step Sequencer Data>

- For the following Step Sequencer parameters, you can select multiple knobs by holding down [Shift] and clicking the desired knobs. This lets you edit all of the selected knobs together as a group.

Note No.
Velocity
Gate Time
Control Change Value

File Menus

When the AN Expert Editor is active and selected, the following functions appear in the File menu:

- [New AN Expert File](#)
- [Open AN Expert File](#)
- [Save AN Expert File](#)
- [Save AN Expert File As](#)

These are used for creating, saving, and opening your original AN Expert Files. Using the Save (or Save As) command here saves all 128 User voices and 128 User Step Sequencer patterns to a selected AN Expert File. (The special .ANS extension allows you to easily organize the files.)

By keeping a library of your original voices as AN Expert Files, you can easily call up the settings you need (with the Open command) and quickly insert them to a song or transmit them to your tone generator/sound card.

NOTE

- Before saving a set of User voices or User Step Sequencer patterns as an AN Expert File, make sure to store the voice currently being edited. If a voice is not properly stored, it will not be contained in the AN Expert File data.

New AN Expert File

Use this function to create a new AN Expert File. (Keyboard shortcut: [Alt], [F], [I], then [ENTER].)

If you've edited the current settings of the AN Expert Editor at all, the display then prompts you to store the voice. (See [Storing an AN Voice](#).) Creating a new AN Expert File cancels the current panel settings and resets all parameters to their normal values. Creating a new AN Expert File resets the User Voices and User Patterns back to the defaults, the same data as those when the power is turned on.

HINT

- See [AN Librarian](#) information on initializing the User Voice.

NOTE

- This operation loads a new file of User Voice and Step Sequencer patterns into only the User voice memory of the AN Expert Editor. If you want to play with these Voices or Step Sequencer patterns separate from the AN Expert Editor, you should transmit the User Voice or Step Sequencer patterns. (Refer to [Transmit AN Bulk Dump Data](#) in the AN Expert Editor Setup, Insert & Transmit tab.) There is no need to transmit AN Bulk Dump Data if you select a voice in the Voice List of the AN Expert Editor, since the current voice bulk data is sent with that operation.

Open AN Expert File

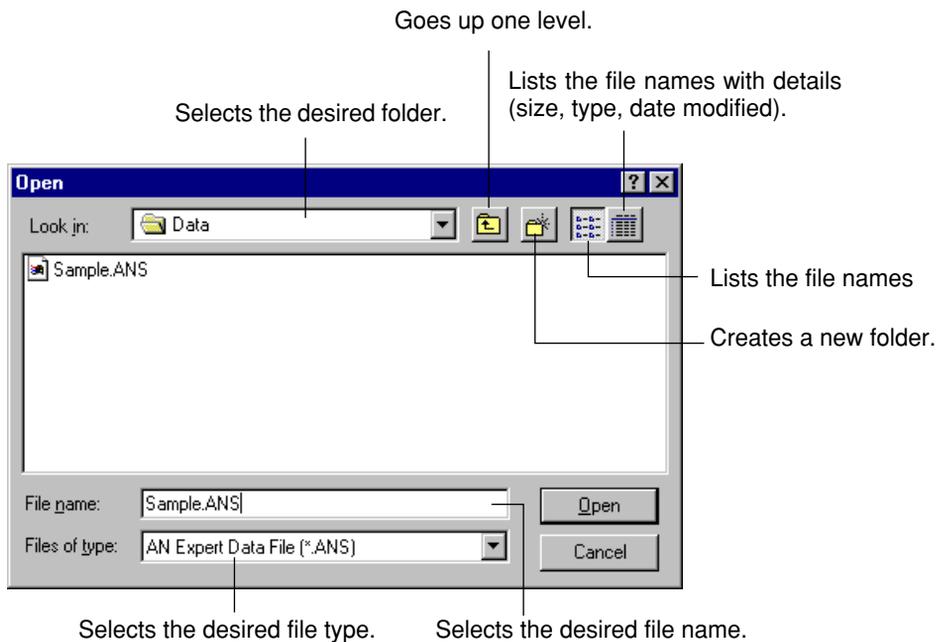
Use this function to open an existing AN Expert File. Keyboard shortcut: [Alt], [F], [R]

NOTE

- The available file types include:
 - AN Expert Data file (*.ANS)
User voices and user sequencer patterns created with the AN Expert Editor.
 - AN1x Editor*** Data file (*.AN1)
User voices and user sequencer patterns created on the AN1x Control Synthesizer.

*** AN1x Editor

- These are data files of the AN1x Editor software, which was previously available as freeware on CD-ROM and floppy disk when the AN1x was first sold. It is currently available at the Yamaha website (<http://www.yamaha.co.uk>).
- Files created with the Macintosh version of the AN1x Editor can be opened here if the extension “.AN1” is added to the end of the file name.



NOTE

- “Open AN Expert File” can also be selected from the **toolbar**.
- Keep in mind that this operation loads the User Voice and Step Sequencer patterns only into the User voice memory of the AN Expert Editor. After opening a file, if you want to play with these Voices or Step Sequencer patterns separate from the AN Expert Editor, you should transmit the User Voice or Step Sequencer patterns. (Refer to [Transmit AN Bulk Dump Data](#) in the AN Expert Editor Setup, Insert & Transmit tab.) There is no need to transmit AN Bulk Dump Data if you select a voice in the Voice List of the AN Expert Editor, since the current voice bulk data is sent with that operation.

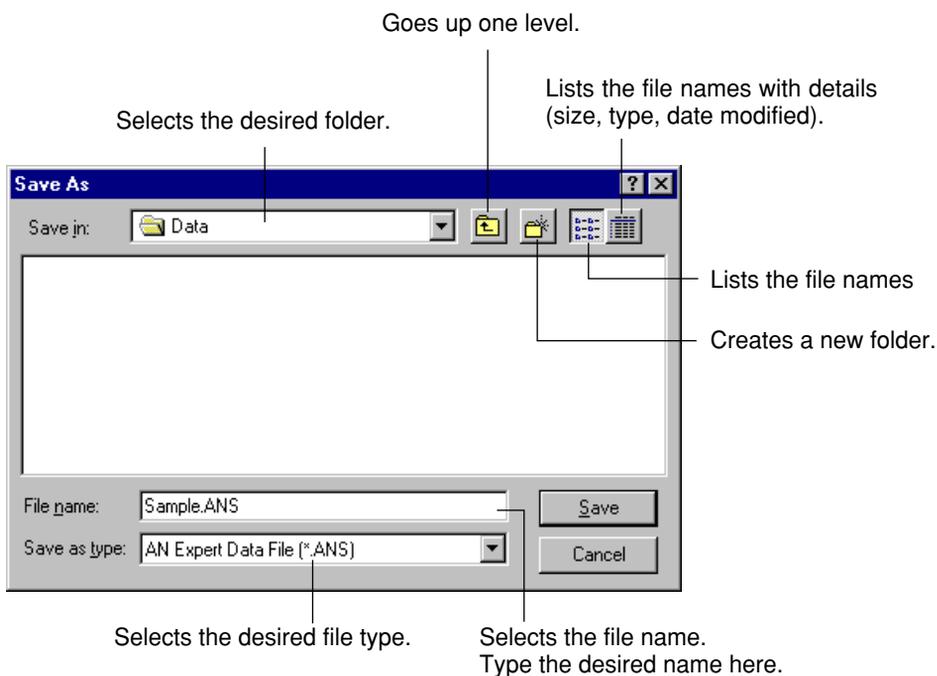
Save AN Expert File / Save AN Expert File As

Use these commands to save the current AN Expert Editor settings to an AN Expert File. (The “Save As” command lets you specify a different file name than the original one.)

Keyboard shortcuts:

Save: [Alt], [F], [W]

Save As: [Alt], [F], [M]



NOTE

- “Save AN Expert File” can also be selected from the [toolbar](#).

When the AN Expert is active and selected, the following functions appear in the Edit menu:

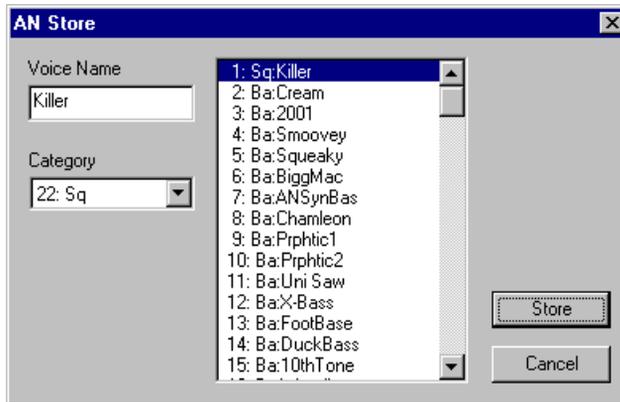
- **AN Store**
- **AN Voice List**
- **AN Record (Plug-in Editor only)**
- **AN Librarian**

AN Store

Use the AN Store dialog box to store the voice currently being edited to one of the User voice memory spaces. Once a voice or voices have been stored in this way, you can **save** the entire set of 128 User voices to an **AN Expert File**.

NOTE

- “AN Store” can also be selected from the **master menu** or by clicking on the **STORE** button.



To store a voice:

- 1) Click the desired location for the newly edited voice.
- 2) Click “Store” to store the voice to the selected location. Keep in mind that this replaces (and erases) the voice at the location with the newly edited one.

NOTE

- Keep in mind that this operation stores your voice data only into the User voice memory of the AN Expert Editor and sends the current voice’s bulk data to the PLG150-AN. The current voice bulk data will be lost if you select another voice on the panel of the plug-in “mother” device. If you want to select a voice on the panel of the “mother” device, you should first transmit the User Voice. (Refer to [Transmit AN Bulk Dump Data](#) in the AN Expert Editor Setup, Insert & Transmit tab.) There is no need to transmit AN Bulk Dump Data if you select a voice in the Voice List of the AN Expert Editor, since the current voice bulk data is sent with that operation.
- The User voice data of the PLG150-AN is lost when the “mother” device is turned off. In order to store User voices on a Modular Synthesis Plug-in System compatible instrument that have been edited/created with the computer-based AN Expert Editor (or with the compatible instrument itself), you’ll need to use an external memory device, such as a memory card. For details on storing voices, refer to the owner’s manual of your Modular Synthesis Plug-in System compatible instrument.

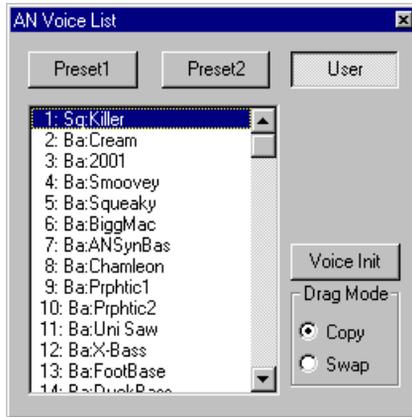
AN Voice List

In the AN Voice List dialog box you can:

- Select a voice from the Preset 1, Preset 2, User voice banks for editing.
- Initialize a User voice to the default settings.
- Copy or swap voices in the User voice banks.

NOTE

- “AN Voice List” can also be selected from the [master menu](#) or by clicking on the [VOICE button](#).



• **Preset 1, Preset 2, User Buttons**

Click on one of these to select the desired voice bank: Preset 1, Preset 2, or User.

• **Voice List Box**

Select a voice by clicking on the desired voice name in the list.

Copying a voice to another voice location

- 1) Set Drag Mode to “Copy.”
- 2) Click the desired voice and drag it to the desired location. Keep in mind that this replaces (and erases) the voice at the location.

Swapping the location of two voices

- 1) Set Drag Mode to “Swap.”
- 2) Click the desired voice and drag it to voice you wish to swap it with. This simply moves the voice to the selected location; it does not affect the actual data.

Copy and Swap operations can also be executed from the [AN Librarian](#) dialog box.

• **Voice Init**

Click this to initialize the selected voice to its [default parameter values](#). This gives you a “blank slate” from which to create a new voice.

• **Drag Mode**

In the Voice List box, a voice can be dragged to another voice location. This setting determines the result of that operation: whether the voice is copied to the new location, or swapped with the voice at the new location.

NOTE

- The Voice Init and Drag Mode functions are only effective when the User voice bank is selected.

AN Record

NOTE

- The following information pertains only to the Plug-in Editor.

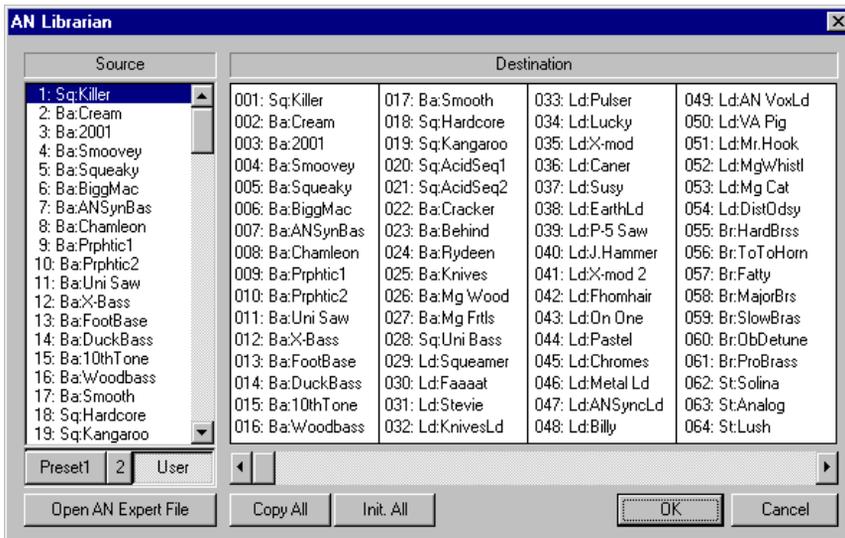
This allows you to record your edit moves to a track, creating dynamic changes in the AN voice as the song plays. Click the button once to begin recording (at the beginning of the song, or at the specified location in the floating play control window). Click it again to stop recording. (See [Recording Within the AN Expert Editor](#).)

NOTE

- "AN Record" can also be selected from the [toolbar](#).
- Depending on your particular host application, certain operation steps may differ and/or this function may not be available.

AN Librarian

The Librarian dialog box gives you a set of convenient, easy-to-use tools for organizing the User voices of your AN Expert Files.



The Source box shows User voices contained in the opened AN Expert File (see [Open AN Expert File](#) below). The Destination box contains the set of User voices currently in the AN Expert Editor, and represents the new AN Expert File to be created.

First copy the desired voices from the Source to the Destination, then exit the Librarian and [save](#) the new set of voices as a AN Expert File. You can open different AN Expert Files one by one, and freely copy the desired voices to the Destination before saving.

Copying a voice from the Source box to the Destination box:

- 1) Click the desired voice in the Source box. (This is the voice you will be copying.)
- 2) Drag the highlighted voice to the Destination box, and drop it at the desired number. (This is the location to which the voice will be copied. The previous voice at the location is erased and replaced with the new one.)
- 3) Click "OK" to exit the Librarian.
- 4) [Save](#) the newly created set of User voices as a AN Expert File.

- **Open AN Expert File**

Click this to select and open an existing AN Expert File. (See [Open AN Expert File](#).) The voices of the opened AN Expert File are shown in the Source box.

- **Copy All**

Clicking this button copies all the voices listed in the Source box to the Destination box.

NOTE

- This operation erases all previous voices in the Destination box and replaces them with the Source voices.

- **Init. All**

Clicking this button initializes all the Destination voices to their default settings. (See [Initial Voice Default Settings](#).) This function allows you to reset all the parameters of the selected voice to the factory initial voice with default values. This gives you a blank slate from which you can create your own voice.

NOTE

- This operation erases all previous voices in the Destination box and replaces them with identical initialized voices.

- **OK**

Click this to actually execute any of the Librarian operations and exit from the Librarian box.

- **Cancel**

Click this to exit the Librarian box without executing any of the Librarian operations.

Setup Menus

When the AN Expert Editor is active and selected, the following functions appear in the Setup menu:

- **AN Expert Editor Setup**
- **AN Display Option**
- **AN Morphing**
- **Insert AN Bulk Dump Data (Plug-in Editor only)**
- **Extract AN Bulk Dump Data (Plug-in Editor only)**
- **Transmit AN Bulk Dump Data**
- **Receive AN1x Bulk Dump Data**
- **Transmit XG System On**

AN Expert Editor Setup

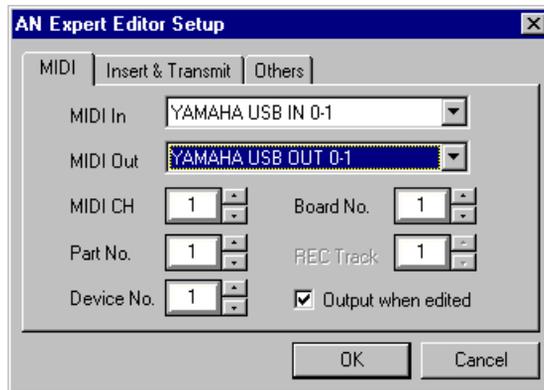
This window lets you make a variety of basic and detailed settings for the AN Expert Editor. These are contained in three tabs: **MIDI**, **Insert & Transmit**, and **Others**.

Keyboard shortcut: [Alt], [U], [U], [ENTER]

NOTE

- “AN Expert Editor Setup” can also be selected from the **toolbar**.

MIDI Tab



- **MIDI In**

Settings: Device, In port number

This determines which MIDI input device (interface) and port is used for receiving AN Expert Editor data.

- **MIDI Out**

Settings: Device, Out port number

This determines which MIDI output device (interface) and port is used for sending AN Expert Editor data. There are four available devices/ports, as specified in the System Setup parameters (Setup ---> System Setup). (For details on System Setup, refer to the host application's manual.)

- **MIDI CH (Channel)**

Range: 1 ... 16

This determines which MIDI channel is used for sending AN Expert Editor data. Set this to match the receive channel for the Part you wish to control.

- **Part No. (Number)**

Range: 1 ... 16

This determines which Part is to be used for the AN voice.

NOTE

- When using a Modular Synthesis Plug-in System “mother” device, the Part assignment depends on which mode is used - Voice or Performance - and also on whether the PLG150-AN board is installed/assigned to PLG1 or PLG2, as described below.

When using the Voice mode:

Set the Part to “1” (no matter what the PLG1 or PLG2 assignment is).

When using the Performance (Multi) mode:

If the PLG150-AN board is assigned to PLG1, set the Part to “16.”

If the PLG150-AN board is assigned to PLG2, set the Part to “15.”

- **Device No. (Number)**

Range: 1 ... 16

This determines which tone generator the AN Expert Editor will send data to. This should be set to same number as the Device Number of the tone generator/sound card to which the PLG150-AN is installed. If you have multiple tone generators in your MIDI setup and each is set to a different Device Number, this parameter lets you select which tone generator will be affected by the AN Expert Editor. If you are using only one tone generator, this should be set to “1.”

- **Board No. (Number)**

Range: 1 ... 8

This determines which tone generator card (or board) the AN Expert Editor will send data to. If you have multiple PLG150-AN boards in the “mother” device, then each will automatically be set to a different Board Number (in order, from 1, 2, 3, etc.). This parameter lets you select which card will be affected by the AN Expert Editor. If you are using only one PLG150-AN board, this is automatically set to “1.”

NOTE

- When transmitting the User Voice or User Step Sequencer Pattern via MIDI (with [Transmit AN Bulk Data](#)), the same data is sent to multiple boards, no matter what Board Number is set here.

- **REC (Record) Track (Plug-in Editor only)**

Range: 1 ... 100

This determines the track to which the AN-related data and settings will be inserted (with the [Record](#) function). Generally, you should use the same track number for all parameter inserts, and make sure that no other data is contained in the track.

NOTE

- Depending on your particular host application, certain operation steps may differ and/or this function may not be available.

- **Output when edited**

When this is checked, any edits that you make with the AN Expert Editor are instantly and automatically transmitted to the PLG150-AN. This ensures that you can audition edits as soon as you make them.

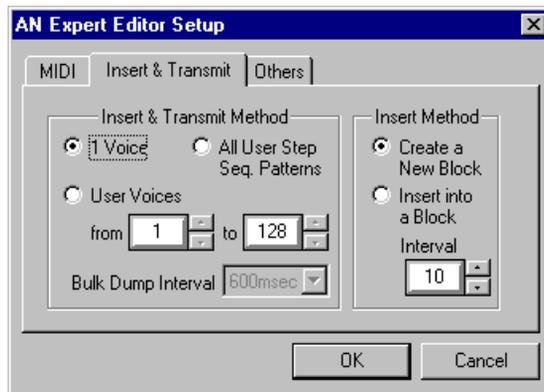
- **OK**

Click this to apply all the settings you've made in the three tabs.

- **Cancel**

Click this to return to the main AN Expert Editor window without changing any of the settings.

Insert & Transmit Tab



This tab features various settings related to how the AN parameters are inserted to the sequence data (using the [Insert AN Bulk Dump Data](#) function). It also applies to the [Transmit AN Parameters](#) function.

- **Insert & Transmit Method**

- **1 Voice**

When this is selected, only the data for the currently selected voice will be inserted/transmitted.

- **User Voices**

When this is selected, User voices will be inserted/transmitted.

- **All User Step Seq. Patterns**

When this is selected, all 128 User Step Sequencer patterns will be inserted/transmitted.

Bulk Dump Interval

Range: 600msec ... 1.5sec

This parameter is available when “User Voices” above is selected. Bulk Dump Interval determines the amount of time (in clocks) that separates each data insertion/transmission. If the tone generator or card “chokes” on the incoming MIDI data, or host application has trouble sending all the data properly, or some other trouble occurs, try setting the Interval to a higher number.

- **Insert Method (Plug-in Editor only)**

- **Create a New Block**

- When this is selected, a new block (containing the inserted parameters) is created to a track in host application.

- **Insert into a Block**

- When this is selected, the inserted parameters are put into an existing block in host application.

- **Interval**

- Range: 0 ... 230

- This determines the amount of time (in clocks) that separates each insertion. If the tone generator or card “chokes” on the incoming MIDI data, or host application has trouble sending all the data properly, or the AN voice doesn’t seem to change as expected, try setting the Interval to a higher number.

- The interval value can be adjusted by using the left and right [mouse buttons](#). It can also be entered directly by typing in the desired number from the [computer keyboard](#).

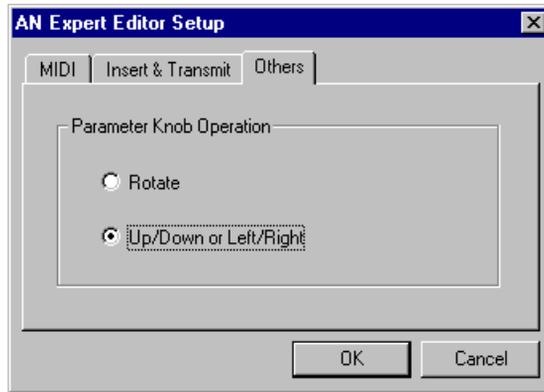
- **OK**

- Click this to apply all the settings you’ve made in the three tabs.

- **Cancel**

- Click this to return to the main AN Expert Editor window without changing any of the settings.

Others Tab



This tab features two operation preference settings for the AN Expert Editor.

- **Parameter Knob Operation**

- **Rotate**

- When this is selected, the parameter values (of the panel “knobs”) are changed by moving the mouse in a circular direction.

- **Up/down or left/right**

- When this is selected, the parameter values (of the panel “knobs”) are changed by moving the mouse vertically or horizontally.

- **OK**

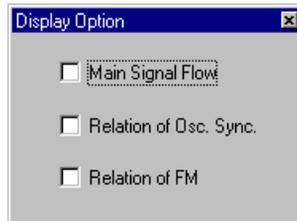
- Click this to apply all the settings you’ve made in the three tabs.

- **Cancel**

- Click this to return to the main AN Expert Editor window without changing any of the settings.

AN Display Option

This convenient feature lets you change the display of the main control panel to indicate the current status of certain signal routings within the PLG150-AN. When one of the options is enabled (a check mark appears), color-coded highlights, arrows and lines appear to show how the relevant blocks and parameters affect each other. Any or all of the three options below can be enabled.



- **Main Signal Flow**

When this is checked, the signal flow of the main blocks (e.g., VCO blocks into MIXER, MIXER into VCF, etc.) is shown.

- **Oscillator Sync Routing**

When this is checked, the master/slave relationship of the [Oscillator Sync feature](#) is shown.

- **FM Routing**

When this is checked, the modulation routing of the [FM feature](#) is shown.

HINT

- Although the AN Display Option can also be selected from the [master menu](#), you may want to use this slightly quicker, more convenient way of changing the display: Open the AN Display Option box in the conventional way (from the Setup menu), and drag the box to an open space on the screen. Then, when you want to change the setting, simply move the cursor to the box and click --- the display changes instantly to your preference.

AN Morphing

This is used for making the appropriate settings for the Morphing function, which lets you crossfade between two different voices using a MIDI controller. The desired MIDI controller and Morphing voice can be selected here.

Keyboard shortcut: [Alt], [U], [P]

NOTE

- The AN Morphing settings apply to all voices for the AN Expert Editor, and cannot be set independently for each voice (this includes the **MORPH switch**).
- “AN Morphing” can also be selected from the **toolbar**.



• Morphing Controller

Range: 1 - 95, AT (after touch)

This determines the MIDI controller (control change number) that is used to “morph” or crossfade between the currently selected voice and the **Morphing voice** (selected below). For example, if controller #1 is specified here, the modulation wheel on a MIDI keyboard can be used to morph between the two voices.

NOTE

- The particular MIDI controller and its actual number assignment may depend on settings made to the connected MIDI instrument; see the relevant owner’s manual for details. Also, refer to the list of **control change numbers** and their commonly used controllers.

MIDI Control Change Numbers

Control No.	Controller
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	Hold 1
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 (Reverb Effect)
92	Unassigned
93	Effect Send Level 3 (Chorus Effect)
94	Effect Send Level 4 (Variation Effect)
95	Unassigned
AT	After Touch

- **Select Voice**

This determines the Morphing voice. When you work the appropriate MIDI controller (set in [Controller](#) above), the currently selected voice will “morph” or crossfade with the voice selected here.

To select a voice:

- 1) Specify a bank by clicking on the desired bank button: Preset 1, Preset 2, or User.
- 2) Click on the voice combo box and select the desired voice. For a complete list of available voices, see the Voice List in the PLG150-AN Owner’s Manual.

NOTE

- The Morphing function affects the following voice parameters:

[PEG]	PEG Attack Time, PEG Decay Time, PEG Depth
[LFO]	LFO1 Speed, LFO2 Speed, LFO1 Delay, VCO1 Pmod Depth, VCO2 Pmod Depth, VCA Mod Depth, VCF Mod Depth
[SYNC]	Sync Pitch Control Depth
[FM]	FM Depth
[VCO1]	VCO1 Pitch, VCO1 Fine, PWM Depth, PW, Edge, Sync Pitch
[VCO2]	VCO2 Pitch, VCO2 Fine, PWM Depth, PW, Edge
[MIXER]	VCO1 Level, VCO2 Level, Noise Level, Ring Mod. Level, Feedback Level
[VCF]	VCF Cutoff, Resonance, Key Track, HPF Cutoff, FEG Velocity Sense, FEG Depth, FEG Attack, FEG Decay, FEG Sustain, FEG Release
[VCA]	Volume, Velocity Sense, AEG Attack, AEG Decay, AEG Sustain, AEG Release

Parameters not listed here do not respond to the Morphing control and remain fixed at the values set for the currently selected voice (not the Morphing voice).

- Each voice name is preceded by a two-letter category abbreviation that indicates the general instrument group to which the voice belongs. For example, “Ld” indicates “lead,” “Ba” indicates “bass,” “Pd” indicates “pad,” and so on.

Insert AN Bulk Dump Data

NOTE

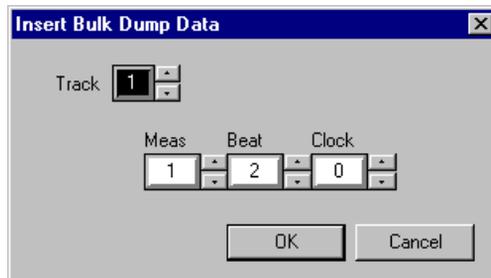
- The following information pertains only to the Plug-in Editor.

This is used for inserting the edited AN voice data to a song track in host application. (This is affected also by the [AN Expert Editor Setup / Insert & Transmit Method](#) settings.) By inserting appropriate bulk dump at appropriate points in a song, you can have the AN voice change automatically as needed. Keep in mind that this is possible only when the “1 Voice” setting is selected in the [Insert & Transmit Method](#) parameter. When “User Voice” or “User Step SEQ” is selected, you should insert the data to the very beginning of the song (before any note data) as Bulk Data.

Keyboard shortcut: [Alt], [U], [I]

NOTE

- “Insert AN Bulk Dump Data” can also be selected from the [toolbar](#).



- **Track**

This determines the track to which the AN parameter settings will be inserted. Generally, you should use the same track number for all parameter inserts, and make sure that no other data is contained in the track.

- **Measure / Beat / Clock**

This determines the precise location in the track to which the parameter settings will be inserted. You can specify the Measure (Meas), Beat, and Clock.

- **OK**

Click this to insert the current parameters at the specified location.

- **Cancel**

Click this to abort the operation.

Extract AN Bulk Dump Data

NOTE

- The following information pertains only to the Plug-in Editor.

This is used for importing the AN voice data contained in host application sequence data to the AN Expert Editor. Specify the range (Start and End points) from which you want to extract the settings. All current voice settings will be replaced by the extracted data. This allows you to check what bulk data (voice and/or pattern) has been inserted to the song; also, once you've extracted the data, you can [Saving data to an AN Expert file](#). This function has no effect if there is no AN voice data in the specified range.

Keyboard shortcut: [Alt], [U], [E]

NOTE

- “Extract AN Bulk Dump Data” can also be selected from the [toolbar](#).

	Meas	Beat	Clock
Start	1	1	0
End	1	1	0

Buttons: OK, Cancel

- **Start**

Measure / Beat / Clock

This determines the beginning point in the track from which the AN bulk dump data and AN parameters will be extracted. You can specify the Measure (Meas), Beat, and Clock.

- **End**

Measure / Beat / Clock

This determines the end point in the track from which the AN bulk dump data and AN parameters will be extracted. You can specify the Measure (Meas), Beat, and Clock.

- **OK**

Click this to extract the parameters at the specified location.

- **Cancel**

Click this to abort the operation.

Transmit AN Bulk Dump Data

This is used for directly transmitting the AN Expert Editor voice data or Step Sequencer Pattern settings as MIDI bulk dump data (depending on the [Insert & Transmit Method](#) setting) to the PLG150-AN board. To use this, highlight the command in the menu, then click.

NOTE

- “Transmit AN Bulk Dump Data” can also be selected from the [toolbar](#).

Receive AN1x Bulk Dump Data

This is used for importing AN voice data from an AN1x Control Synthesizer. All current settings will be replaced by the received data.



- **Receive Method**

1 Voice

When this is selected, only the data for one voice will be received. This data is loaded into the edit buffer (temporary memory storage).

NOTE

- Make sure to store the received voice after executing this operation. Otherwise the data will be lost upon selecting a different voice.

All User Voices

When this is selected, the data for 128 User voices will be received.

All User Step Seq. Patterns

When this is selected, the data for all 128 User Step Sequencer patterns will be received.

NOTE

- For details on the PLG150-AN's compatibility with the AN1x, refer to the MIDI Data Format in the Owner's Manual.

- **Receive AN Bulk Dump**

Start

First, click this button to start reception of the data. Then start transmitting the bulk data from AN1x. (For details, refer to the AN1x Owner's Manual.)

The various data types that can be sent/received are abbreviated on the AN1x as follows:

1 Voice :	"1 vce"
All User Voices :	"all vce"
All User Step Patterns :	"all ptn"

The progress bar indicates how much data has been received. When the bar is completely filled, all data has been received.

- **OK**

Click this to exit from the dialog box once all data has been received.

NOTE

- **Make sure that the MIDI OUT jack of the AN1x is properly connected to the computer/interface MIDI IN jack, and that all settings are appropriate - both on the AN1x and on the host application.**

Transmit XG System On

This is used for directly transmitting an XG System On message to the tone generator/sound card, initializing all XG settings. To use this, highlight the command in the menu, then click.

NOTE

- This operation initializes all XG parameters (System parameters and Part parameters) and AN Native Part parameters. On an XG Plug-in System “mother” device, the XG parameters of that device are also initialized. However, on a Modular Synthesis Plug-in System (MSPS) “mother” device, the parameters are not initialized.