SP5-8™

Musician's Guide

KURZWEIL®

Part Number 910545-001 Rev. A

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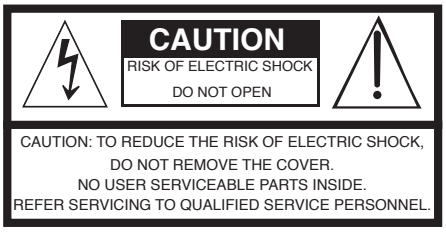

The lightning flash with the arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY & INSTALLATION INSTRUCTIONS

INSTRUCTIONS PERTAINING TO THE RISK OF FIRE ELECTRIC SHOCK , OR INJURY TO PERSONS

WARNING: When using electric products, basic precautions should always be followed, including the following:

1. Read all the Safety and Installation Instructions and Explanation of Graphic Symbols before using the product.
2. This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a power supply cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances.

   DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use an adaptor which defeats the function of the equipment-grounding conductor. If you are in doubt as to whether the product is properly grounded, check with a qualified serviceman or electrician.
3. Do not use this product near water – for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
4. This product should only be used with a stand or cart that is recommended by the manufacturer.
5. This product, either alone or in combination with an amplifier and speakers or headphones, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
6. This product should be located so that its location or position does not interfere with its proper ventilation.
7. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
10. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power supply cord, do not pull on the cord, but grasp it by the plug.
11. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
12. The product should be serviced by qualified service personnel when:
    A. The power supply cord or the plug has been damaged;
    B. Objects have fallen, or liquid has been spilled into the product;
    C. The product has been exposed to rain;
    D. The product does not appear to be operating normally or exhibits a marked change in performance;
    E. The product has been dropped, or the enclosure damaged.
13. Do not attempt to service the product beyond that described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.
14. **WARNING:** Do not place objects on the product's power supply cord, or place the product in a position where anyone could trip over, walk on, or roll anything over cords of any type. Do not allow the product to rest on or be installed over cords of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

RADIO AND TELEVISION INTERFERENCE

WARNING: Changes or modifications to the instrument not expressly approved by Young Chang could void your authority to operate the instrument.

IMPORTANT: When connecting this product to accessories and/or other equipment use only high quality shielded cables.

NOTE: This instrument has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This instrument generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this instrument does cause harmful interference to radio or television reception, which can be determined by turning the instrument off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the instrument and the receiver.
- Connect the instrument into an outlet on a circuit other than the one to which the receiver is connected.
- If necessary consult your dealer or an experienced radio/television technician for additional suggestions.

NOTICE

This apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

AVIS

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet
10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.
12) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

Kurzweil International Contacts

Contact the Kurzweil office listed below to locate your local Kurzweil representative.

US Customers:

American Music & Sound
22020 Clarendon Street, Suite 305
Woodland Hills, CA 91367

Tel: 800-431-2609
Fax: 818-597-0411
Email: Info@AmericanMusicAndSound.com

Customers outside the US:

Young Chang Co., LTD.
9th Floor, Bldg 102, I-Park,
Jeongja-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do
463-859 South Korea

Tel: +82 31 786 7900

www.kurzweil.com

WORLD-WIDE TECHNICAL SUPPORT
Email: support@kurzweil.com.

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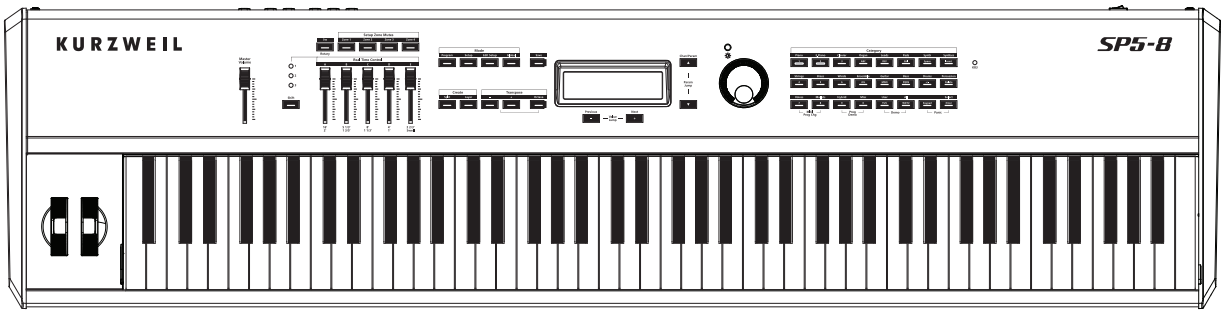
Chapter 1
Introduction

Congratulations on your purchase of a Kurzweil SP5!

This manual will help you get acquainted with your new instrument. Be sure to keep the manual on hand as you continue to familiarize yourself with the features and functions of the SP5.



Main Features

The SP5 is a professional performance instrument. It boasts hundreds of preset excellent sounds (including the famous Triple Strike Stereo Concert Grand Piano) already on-board and ready to be played. It is also a capable MIDI controller ideally suited for controlling additional sound modules and as input to a sequencer.

The SP5 also features the Kurzweil's KB3 organ simulator designed to emulate classic tone wheel organs like the Hammond B3.

Keyboard and Controllers

The SP5 has 88-key fully-weighted graded hammer keyboard action that provides you with a piano-like feel without adding excessive weight to the instrument. The array of physical controllers includes:

- a pitch wheel
- a modulation wheel
- five assignable sliders (use the **Shift** button to select three different functions for each slider to control up to 15 parameters of your choosing).
- on the rear panel, three jacks for optional pedal controllers: two for switch pedals and a third for a continuous controller pedal–Pedal 1(Sustain), Pedal 2 and CC Pedal.

Pedals (Optional)

As described above, the SP5 has three jacks on the rear panel for optional pedal controllers. Two jacks for switch pedals, which are typically used to control two-state (i.e., on / off) parameters such as sustain, sostenuto, and mute Zone. The third jack is for a continuous control (or CC) pedal typically used to control multi-state (i.e., "continuous") parameters such as filter frequency or LFO amount.

Note that switch pedals can be used to control continuous parameters just as continuous control pedals can be used to control two-state parameters.

Your Kurzweil dealer stocks the following pedals:

- FS-1 Standard box-shaped switch pedal
- KFP-1 Single piano-style switch pedal
- KFP-2S Double piano-style switch pedal unit (one stereo plug)
- CC-1 Continuous pedal

Staying Current

Be sure to check the Kurzweil Music Systems website at www.kurzweil.com for new documentation and software updates before using your new instrument.

Do You Have Everything?

Your SP5 package should contain the following in addition to your instrument:

- Power cable and 15V power adapter
- Switch pedal
- USB cable (Type-A-to-Type-B)
- *Musician's Guide* (this book)

If you don't have all of these components, please to contact your Kurzweil / Young Chang dealer.

Chapter 2
Getting Started

This chapter will help you hook up your SP5 to your sound system and MIDI system. If hooking up new gear is familiar to you, then simply read the following two sections in this chapter. If you need more information, then be sure to read this chapter in its entirety.

Before You Start…

Don't connect anything until you make sure your SP5 is properly and safely situated. If your SP5 has been out in the cold, give it time to warm up to room temperature before starting it, since condensation may have formed inside.

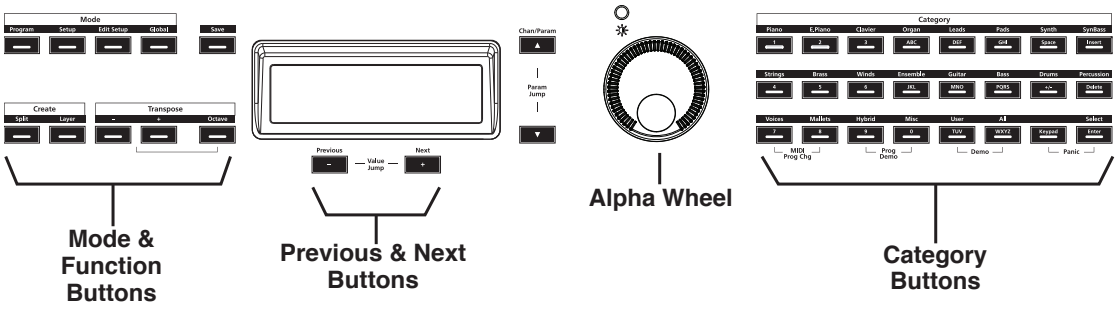
Quick Start

Make Connections

1. Set the keyboard on a hard, flat, level surface.
2. Four adhesive-backed rubber feet are provided with your SP5. If you want to attach them to the bottom of the SP5 (recommended to prevent scratching your tabletop), carefully turn the keyboard over, remove the paper backing from the rubber feet and attach them near each corner all on the same level.
3. Connect the power cable to the adapter then plug the adapter's DC power cord into your SP5. Finally, plug the power cable into the wall.
4. Make sure your sound system is at a safe volume level. Also make sure that the SP5's MASTER VOLUME slider (on the far left side of the front panel) is all the way down.
5. Plug in a pair of stereo headphones or run standard (1/4-inch) audio cables from your amplifier or mixer to the Audio Outputs on the SP5 (use the Left out for mono). Balanced ("TRS" or "Stereo") cables are recommended.

Use Your SP5

1. Power up your SP5 first, and then raise the MASTER VOLUME slider. The SP5 starts up in Program Mode by default. Press one of the function buttons to the left of the display to switch Modes.

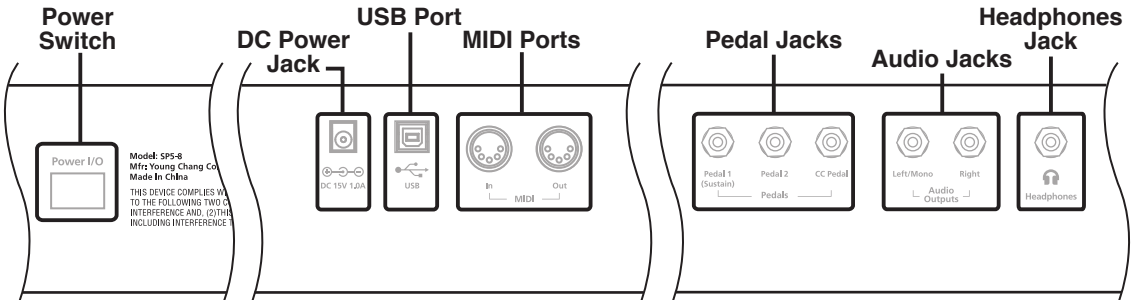


2. If you hear distortion, reduce the gain on your mixing board, or use the pad (a switch that decreases the input audio signal level, typically by 20dB) if it has one.

3. Scroll through the Programs using the Alpha Wheel, the **Previous** and **Next** buttons, or press a **Category** button, and try the SP5's many sounds. Take note that initially there are no Programs in the User Category.

Start Up Details: The Rear Panel

The power switch and all of the SP5's connections take place on the rear panel.



The DC Power Jack

Use the DC power jack to connect the DC power supply.

The USB Port

Use the USB port to connect the SP5 to a computer in order to do the following:

- Use the SP5 as a MIDI controller with a sequencer computer program.
- Use the computer to manage the user data contents of the SP5.
- Update the software and sounds of the SP5.

Be sure to check the Kurzweil Music Systems website at www.kurzweil.com for new documentation and software updates before using your new instrument.

The MIDI (IN and OUT) Ports

Use the MIDI ports to communicate with other MIDI modules and controllers. The OUT port is the MIDI transmitting port, and the IN port is the MIDI receiving port.

The Pedal Jacks

Use the three pedal jacks to connect controller pedals to the SP5.

The Pedal 1 (Sustain) and Pedal 2 Jacks

Use the pedal jacks to connect switch pedals. A switch pedal is a physical controller typically used to control two-state (i.e., "on / off") parameters, such as sustain, sostenuto, and mute Zone. Note that switch pedals can be used to control "continuous" parameters as well. It is possible to connect a dual switch pedal having a single stereo plug (Kurzweil KFP-2S available separately) into the Pedal 1 and Pedal 2 jacks. You would need a Y adapter to do this, see *Connecting a Dual Switch Pedal on page 2-6*.

The CC PEDAL Jack

Use the CC PEDAL jack to connect a continuous control (or CC) pedal. A CC pedal is a physical controller typically used to control multi-state (i.e., "continuous") parameters such as filter frequency or LFO amount. Note that CC pedals can be used to control "on / off" parameters as well.

For more information on connecting pedals, see *Connecting Pedals on page 2-5*.

The Audio (LEFT/MONO and RIGHT) Jacks

Use the LEFT/MONO and RIGHT audio jacks to connect the SP5 to your audio system.

The Headphones Jack

Use the HEADPHONES jack to listen to the SP5 on stereo headphones. You will need a 1/4-inch-to-1/8-inch adapter in order to use headphones with a mini plug.

Connecting the Power Cable (Line Cord)

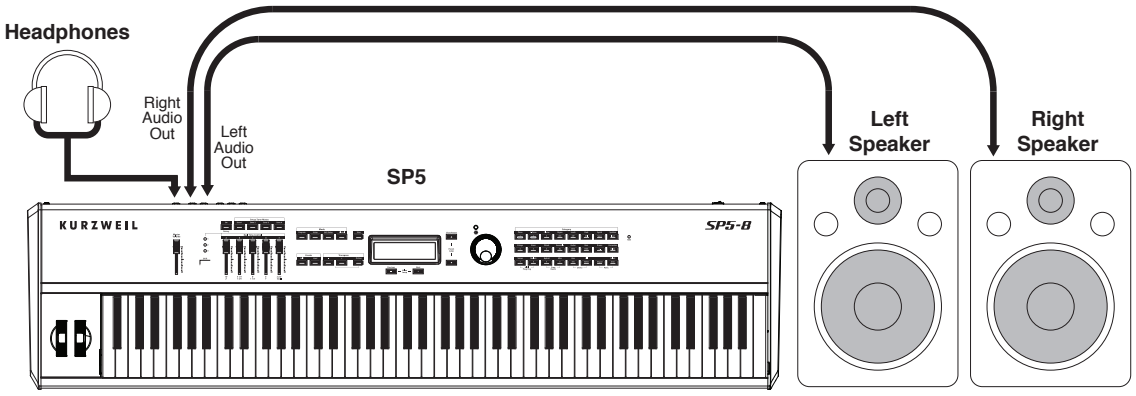
The SP5 runs on 15 volts DC power. If the power cord and 15V power adapter supplied with the SP5 does not match the AC power in your area: 100, 120, 230, or 240 volts at 50–60 Hz; contact your dealer to obtain the correct voltage converter and power cord. Plug the adapter into a wall outlet, and then connect the adapter to the DC power jack.

Connecting to Your Audio System

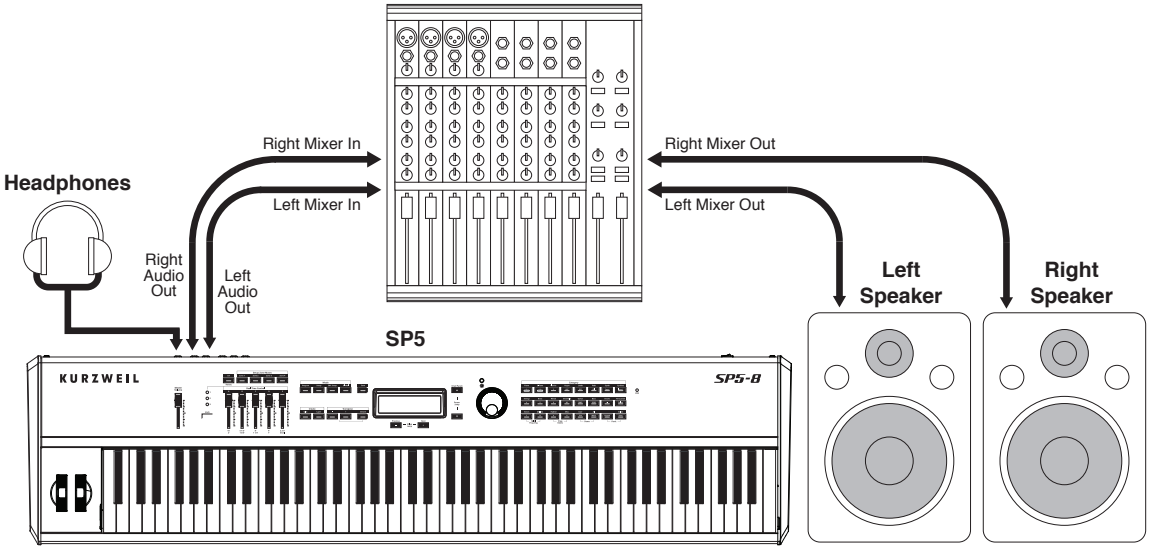
After you've turned down the level on your sound system, connect the SP5's analog audio outputs to your sound system using a pair of stereo or mono audio cables. Mono cables will always work, but if you're going into balanced inputs, use stereo cables for a better signal-to-noise ratio and a bit more volume: the SP5's analog outputs are balanced.

You'll find three 1/4-inch balanced audio output jacks on the rear panel. For now, connect one end of each audio cable to your mixing board or PA system inputs, and connect the other end to the jacks marked LEFT and RIGHT on the rear panel of the SP5. If you have only one input available, use the SP5's Left output to get the full signal in mono. Use the jack marked HEADPHONES to listen to the SP5 on headphones. Note that when headphones are plugged in, sound still comes through the LEFT and RIGHT audio jacks.

SP5 connected to powered speakers and headphones



SP5 connected to a mixer, powered speakers and headphones



Connecting Pedals

Plug your switch or continuous control pedals into the corresponding jacks on the SP5's rear panel. We recommend using the Kurzweil pedals described in *Pedals (Optional) on page 1-2*, but you can use almost any switch or continuous control pedal that adheres to the following specifications (as most pedals do):

Switch pedals	1/4-inch tip-sleeve (mono) plug
Continuous Control (CC) pedals	10-kOhm linear-taper potentiometer, 1/4-inch tip-ring-sleeve (stereo) plug with the wiper connected to the tip

The pedals are independently assignable within each Zone of every setup. Here are the default settings for the three pedals you can use with the SP5:

Switch Pedal 1	Controller 64 (Sustain)
Switch Pedal 2	Controller 66 (Sostenuto)
CC Pedal	Controller 11 (Expression / Volume)

NOTE: Be sure not to step on the switch pedals when powering up your Stage Piano!

Connecting a Switch Pedal

When a switch pedal is plugged into the Pedal 1 jack on the rear panel, a single switch pedal will, by default, act like a sustain pedal. The same is true for the Pedal 2 jack; in this case the single switch pedal will, by default, act like a sostenuto pedal. Of course this can be changed by programming, as described in *Setup Mode on page 7-1*.

If you use a third-party (non-Kurzweil) switch pedal, make sure it's connected before you turn on your SP5. This ensures that the pedal will work properly (it might function in reverse—off when it's down and on when it's up—if you turn on your SP5 before plugging in the pedal). Similarly, don't press any of your switch pedals while powering up, as the SP5 verifies each pedal's orientation during power-up—if you're pressing a pedal, you might cause it to work in reverse.

See *Switch Pedal Problems on page 12-5* if you are having trouble with your switch pedal.

Connecting a Dual Switch Pedal

You can connect a dual switch pedal with a single stereo plug, such as the Kurzweil KFP-2S, into the Pedal 1 and Pedal 2 jacks. You will need a Y adapter with a stereo 1/4-inch jack and two mono 1/4-inch plugs. Plug the Y adapter into the Pedal 1 and Pedal 2 jacks, then connect the dual switch pedal to the Y adapter. If the Sustain and Sostenuto functions are swapped, then swap the two mono plugs.

By default, the right pedal will control sustain as before and the left pedal will control the sostenuto function. If you're not familiar with traditional piano technique, the sostenuto (center) pedal on a grand piano allows one to hold chords in the bass while continuing to play the melody without the latter notes sustaining. Any keys that are down when you depress the pedal will sustain when you let go of the keys, but new notes played afterward will not be sustained. Releasing the pedal puts things back to normal. Of course it can be programmed to do other functions as well.

Connecting a Continuous Control Pedal

A continuous control pedal can be very useful for controlling volume, vibrato, or other effect by foot. The Kurzweil CC-1 continuous control pedal will work best with the SP5, but it is also possible to use third-party continuous control pedals designed for synthesizers. Note that a volume pedal may or may not be satisfactory depending on how it is constructed.

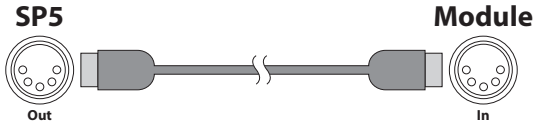
See *Continuous Control Pedal Problems on page 12-5* if you are having trouble with your continuous control pedal.

Connecting MIDI

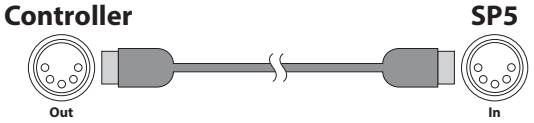
In addition to being a performance-suited musical instrument, the SP5 is a powerful, but intuitive and easy-to-use MIDI controller. For descriptions of how to customize your SP5 as a MIDI controller, and how to use its MIDI controller capabilities to their fullest potential, see *Setup Mode on page 7-1*.

Basic MIDI Hookup

To use the SP5 as a MIDI controller for another sound module, use a MIDI cable to connect the MIDI port marked "OUT" to the MIDI input port of the module that you want to control.



To control the SP5 using another MIDI controller, use a MIDI cable to connect the MIDI port marked "IN" to the MIDI output port of the controller that you will be using.

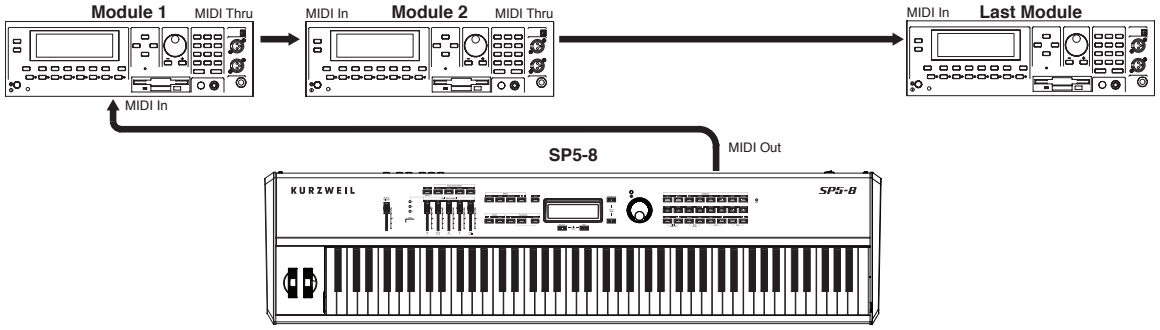


Connecting More Sound Modules

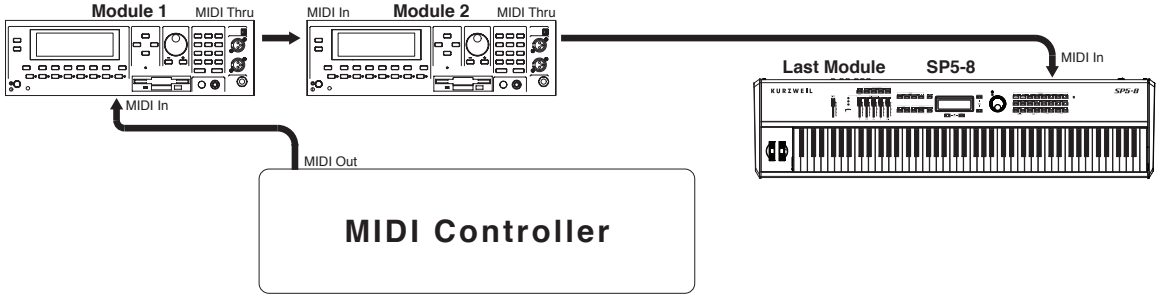
In order to connect multiple sound modules to be controlled by a single MIDI controller, your SP5 must either be (1) used as the controller or (2) be the last module in the MIDI daisy chain. This is because the SP5 does not include a THRU MIDI port; however, this simply means that the SP5 must be at the start or at the end of the MIDI daisy chain.

Using the SP5 as the controller, connect the MIDI OUT port to the MIDI IN port of the first module, and then connect that module's MIDI THRU port to the input of the next module, and so on, until the last module is connected. The MIDI chain should end in the MIDI IN port of the last module.

Scenario 1: SP5 as the MIDI controller

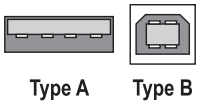


Scenario 2: SP5 as the last module in the MIDI chain



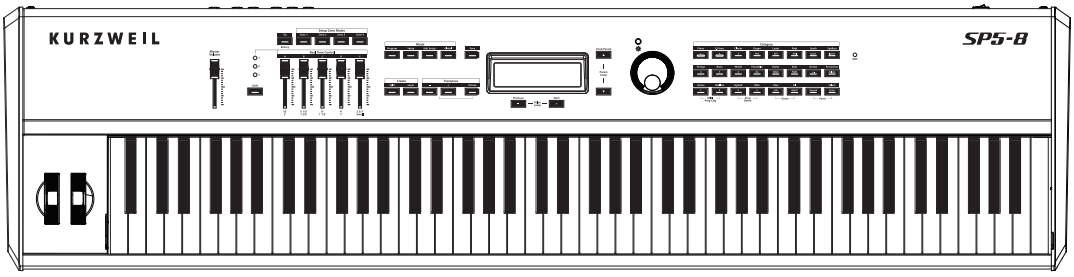
Connecting to a Computer Sequencer

To connect your SP5 to a computer as a MIDI controller, simply connect the SP5 to your computer using the provided cable. If you wish to use your own cable, make sure that it is a Type-A-to-Type-B USB cable (the USB port of the SP5 being Type B). By default, the SP5 will act as a MIDI controller (rather than a hard drive) when connected to a computer.



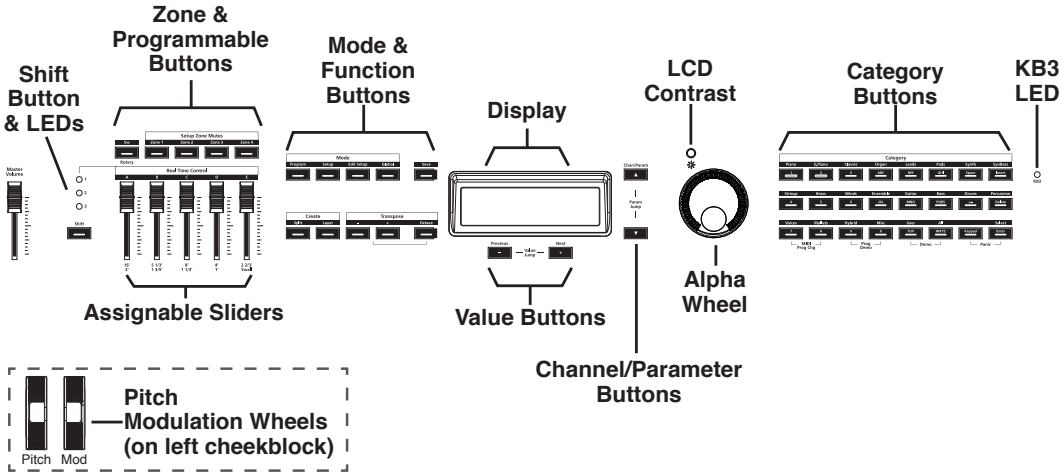
Chapter 3
Features of the SP5

This chapter will help you familiarize yourself with the features of the SP5. Many of these features have both general functions and Mode-specific functions. For more in-depth descriptions of these features, refer to the chapters on the individual Modes.

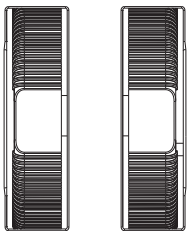


The Front Panel

All of the SP5's controls, both musical and navigational, are on its front panel.



Pitch and Mod Wheels



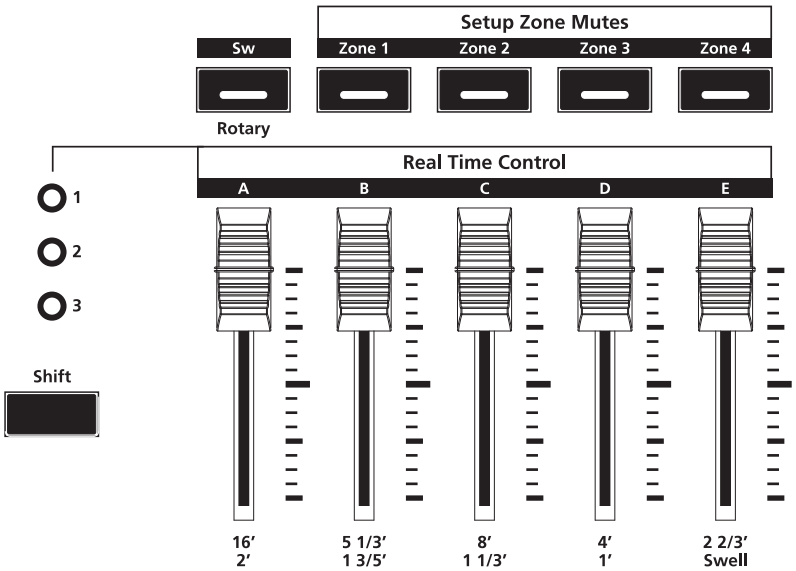
Pitch Wheel

The pitch wheel is the left most of the two wheels. It is spring-loaded, such that its center position is restored when it is not being used. That is because the pitch wheel is used for pitch-bending notes—its "off" position is in the center. Pushing the pitch wheel up bends the pitches of all notes up. Pulling the pitch wheel down bends the pitches of all notes down. You can program the bend amount for the Pitch Wheel using the *Bend Range Down* or *Bend Range Up* parameter on *Bend Range Down on page 8-11*.

Mod Wheel

The mod wheel is the right most of the two wheels. Unlike the pitch wheel, the mod wheel is not spring loaded, and can be set to and left in any position between fully up and fully down. Typically, the mod wheel is assigned to a parameter that alters some aspect of the sound (e.g., vibrato, filter depth) when changed.

Real Time Control



Sliders

The five sliders on the left of the front panel can be assigned to send MIDI continuous controller values. Each slider can independently control three separate functions giving you access to 15 MIDI continuous controllers. Think of this as three rows of five sliders. The LEDs to the left of the sliders indicate what row is active. Press the **Shift** button to select a different row. For example, if you choose or this manual refers to Slider 8, LED 2 will be lit.

The sliders are arranged as follows:

- LED 1 lit, Sliders 1 – 5
- LED 2 lit, Sliders 6 – 10
- LED 3 lit, Sliders 11 – 15

If you select a KB3 Program, the first nine sliders act like tonewheel organ drawbars the remaining six sliders can perform other functions. The labeling below the sliders applies to the KB3 Programs.

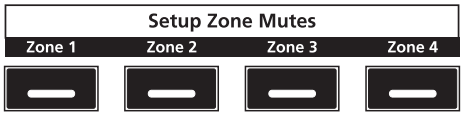
Shift Button

The **Shift** button works in conjunction with the five sliders. Pressing the **Shift** button selects one of the three LEDs directly above it. A lit LED indicates the selected row.

Setup Zone Buttons

Pressing a Zone button will mute or unmute the zone. An active/unmuted Zone button has a lit LED. The LED of an inactive/muted Zone button is not lit.

Zones are the independent regions of the keyboard that make up a Setup, for additional information see *About Zones on page 7-4*.

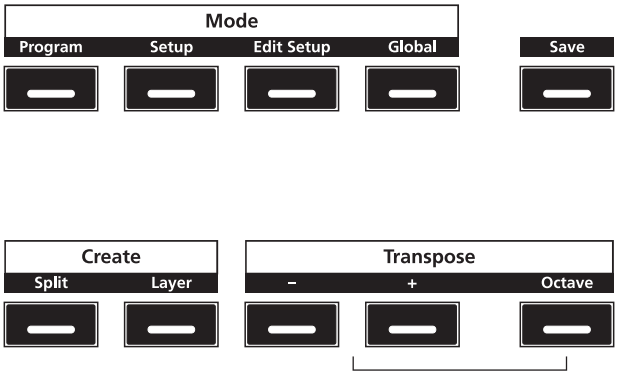


Sw Button

The **Sw** button can be programmed to do a variety of functions. In Program Mode, the **Sw** button normally enables a pad/strings layer for some piano Programs. In Setup Mode, program the **Sw** button to send MIDI CC messages.

Mode & Function Buttons

The Mode buttons are located beneath the "Mode" label on the left side of the front panel. Also in this area of the front panel are the **Split** and **Layer** Function buttons and the **Transpose** and **Save** buttons.



Program Button

Pressing the **Program** button enters Program Mode (described in *Program Mode on page 5-1* and, in further detail, in *Program Mode on page 6-1*). In Program Mode, you can select and play different sounds (or "Programs"). This button's LED is illuminated when you are in Program Mode. Program Mode is the default Mode—the SP5 starts up in this Mode.

Setup Button

Pressing the **Setup** button enters Setup Mode (described in *The Operating Modes on page 5-1* and, in further detail, in *Setup Mode on page 7-1*). In Setup Mode, you can select different configurations (or "Setups") of Programs, controller assignments, and MIDI channel assignments. This button's LED is illuminated when you are in Setup Mode.

Edit Setup Button

Pressing the **Edit Setup** button enters Edit Setup Mode (described in *The Operating Modes on page 5-1* and, in further detail, in *Edit Setup Mode on page 8-1*). In Edit Setup Mode, you can edit or create Setups. This button's LED is illuminated when you are in Edit Setup Mode.

Global Button

Pressing the **Global** button enters Global Mode (described in *The Operating Modes on page 5-1* and, in further detail, in *Global Mode on page 9-1*). In Global Mode, you can edit parameters that control the entire SP5. These include tuning, transposition, and velocity and pressure (After Touch) sensitivity. Additionally, you can save or load User Programs and Setups to and from a computer connected to the SP5 via USB as well as perform a hard reset in this Mode. This button's LED is illuminated when you are in Global Mode.

CAUTION: PERFORMING A HARD RESET WILL DELETE ALL USER PROGRAMS, USER SETUPS, AND GLOBAL SETTINGS.

Save Button

In Program Mode, pressing the **Save** button saves the changes to the current Program (sliders, **Sw** button, Mod Wheel) as a User Program, see *Saving a User Program on page 6-11*. In Setup Mode, pressing the **Save** button saves a copy of the current Setup. This is a copy of the original Setup and does not include the current state of the physical controllers (i.e., moved sliders, Mod Wheel, etc.), see *Saving a User Setup on page 7-9*. In Edit Setup Mode, pressing the **Save** button saves the currently edited Setup, see *Saving a User Setup on page 8-18*. The **Save** button's LED is illuminated once you have made changes to the current Program or Setup.

Split Button

Pressing the **Split** button performs the Split Function. With the Split Function, you can split the keyboard in up to four Zones, and assign different Programs, MIDI settings, and transpositions to each Zone. The Split Function is described further in *The Split Function on page 5-4*.

Layer Button

Pressing the **Layer** button performs the Layer Function. With the Layer Function, you can layer the keyboard in up to four Zones, and assign different Programs, MIDI settings, and transpositions to each Zone. The Layer Function is described further in *The Layer Function on page 5-4*.

Transpose Buttons

In Program and Setup Modes, the top line of the display shows the current transposition value; zero is the default value. Pressing the **Transpose +** button will transpose the current Program or Setup up by one semitone; pressing the **Transpose –** button will transpose the current Program or Setup down by one semitone. Pressing both **Transpose +** and

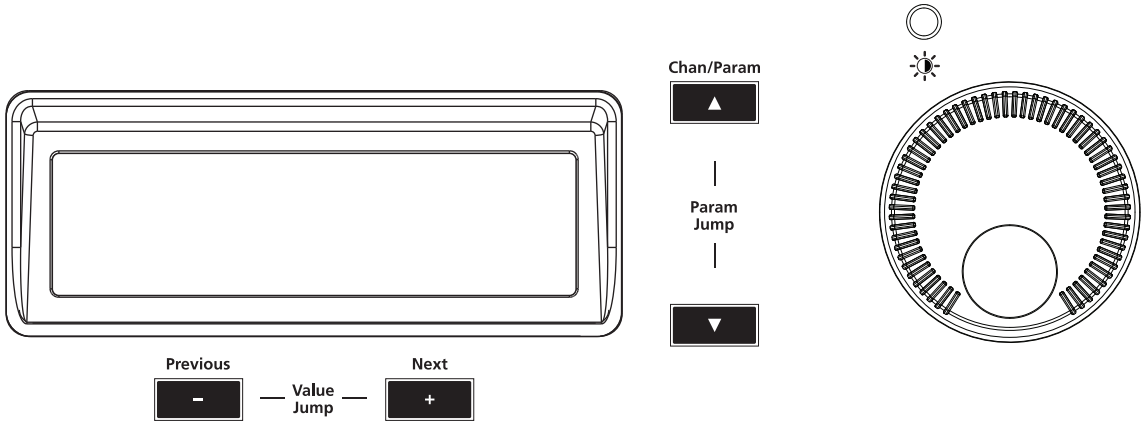
Transpose – buttons simultaneously will restore the current Program or Setup to having no transposition. If the transposition value is greater than zero, the **Transpose +** button's LED will be lit. If the transposition value is less than zero, the **Transpose –** button's LED will be lit.

If the **Octave** button is active, pressing the **Transpose +** or **Transpose –** buttons will transpose the current Program or Setup in octaves (+/– 12 semitones). The **Octave** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

The maximum transposition value is +/–36. If the **Octave** button is active and the current transposition value is greater than +24, pressing the **Transpose +** button will not increase the value as it would be out of range. If the **Octave** button is active and the current transposition value is less than –24, pressing the **Transpose –** button will not decrease the value as it would be out of range. The **Transpose +** and **Transpose –** button LEDs are lit if they have a transposition value other than zero.

Navigation

The navigation section of the SP5's front panel includes the alphanumeric display, Value buttons, **Chan / Param** buttons, and the Alpha Wheel. The display contrast knob is also located in this section above the Alpha Wheel.



The Display

The display shows two lines of text up to twenty characters in length. In Program and Setup Mode, the top line of the display shows the current Mode, MIDI transposition, and MIDI Channel (Program Mode only) and the bottom line shows the current Program or Setup ID number and name. In the other Modes—Edit Setup, Global, and System—the top line of the display shows the current Mode, Zone number (Edit Setup Mode only) and the current parameter number as well as the total the number of available parameters. The bottom line of the display shows the current parameter and value.

NOTE: In the event a display line of text exceeds 20 characters, the text will scroll across the display marquee-style.

Previous (–) and Next (+) Value Buttons

Use the **Next** and **Previous** buttons to scroll through the list of items on the display. Pressing both the **Next** and **Previous** buttons simultaneously is called Value Jump and is referred to as the Value Jump buttons. Depending on the current Mode or operation, the Value Jump buttons can select the next Category or default Program, jump to specific intervals, and reset parameter values. For more information, see *Value Jump on page 3-9*

Chan / Param Buttons

In Program Mode, pressing the **Chan / Param Up (^)** button will change the MIDI transmit channel from the current channel to the next one; pressing the **Chan / Param Down (v)** button will change the MIDI transmit channel from the current channel to the previous one. When the highest or lowest MIDI transmit channel is reached, the list will wrap back to the last or first MIDI transit channel respectively. The top line of the display shows the current MIDI transmit channel.

In the other Modes—Edit Setup, Global, and System—pressing the **Chan / Param** buttons will scroll through the parameter list for the current Mode. As shown in the example below, the top line of the display shows the current parameter number / total number of parameters.

NOTE: The **Chan / Param Up (^)** and the **Chan / Param Down (v)** buttons are not used in Setup Mode.

Alpha Wheel

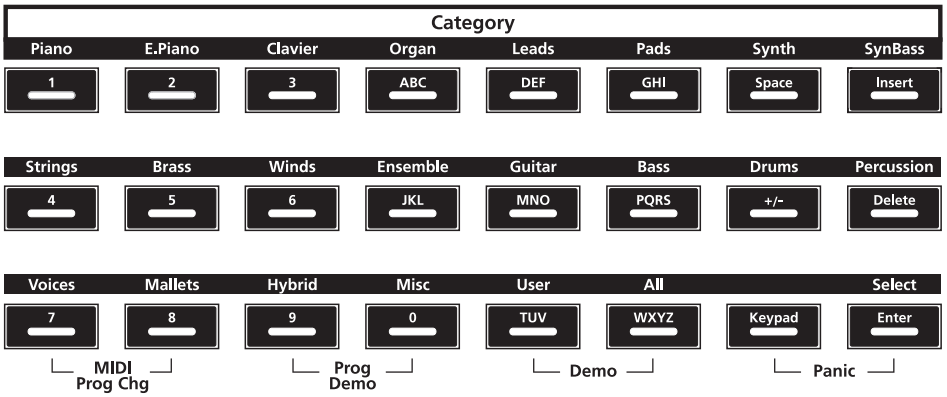
Use the **Alpha Wheel** to scroll through the list of items on the display—turning the Alpha Wheel counter-clockwise will select the previous item and turning the Alpha Wheel clockwise will select the next item. You can turn the Alpha Wheel slowly to change the value by one increment or turn it quickly to jump several increments.

Display Contrast Knob

You can adjust the display contrast by turning this small potentiometer knob.

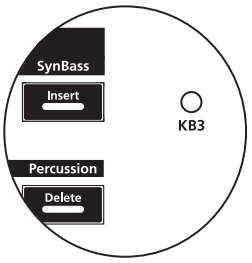
Category Buttons

The Category buttons are on the right side of the front panel. There are 24 buttons in this section—20 buttons to select Programs by instrument type, two buttons that allow you to scroll through Programs and Setups, and two buttons for alphanumeric data entry. Note that on each button the secondary alphanumeric function is printed in white ink.



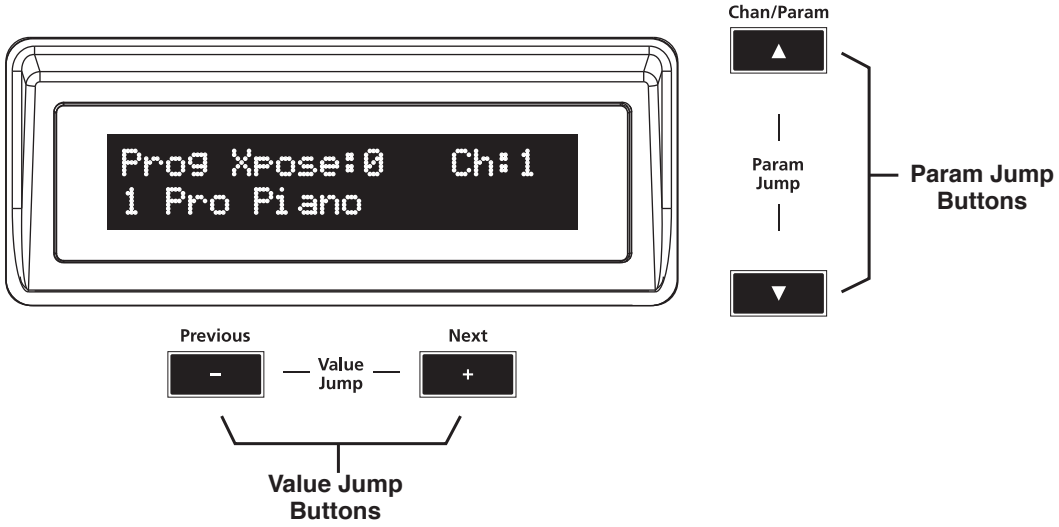
KB3 LED

The KB3 LED is on the right side of the Category buttons. If a KB3 Program is the current Program, the KB3 button's LED is lit.



Double Button Presses

Several pairs of the buttons on the SP5 have timesaving secondary functions when pressed simultaneously—think of them as keyboard shortcuts. For convenience of reference, descriptions of all of the double-button press functions appear below.



Value Jump

Depending on the current Mode or operation, pressing both the **Next** and **Previous** Value buttons simultaneously selects the following:

In Program Mode, pressing the Value Jump buttons selects the first Program of next Category or the default Program, if any, of the current Category. The destination of the first jump depends on where you are in the current Category.

For example, if the current Program is the first Program of a Category, pressing the Value Jump buttons selects the default (favorite) Program of that Category. If the default is the same as the first (no favorite saved), pressing the Value Jump buttons selects the first Program of the next Category. Pressing the Value Jump buttons yet again selects the default Program for that Category, if any, or the first Program of the next Category, etc. This continues each time you press the Value Jump buttons. For more information on choosing a new default Program, see *Choosing Favorites on page 6-5*.

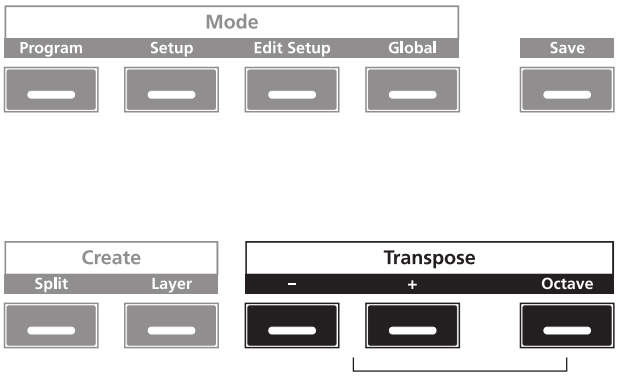
In Setup Mode, pressing the Value Jump buttons jumps the current Setup to the next Setup in intervals of eight (Value Jump = current Setup + eight).

In Edit Setup Mode, pressing the Value Jump buttons resets the current parameter to its the default value.

Parameter Jump

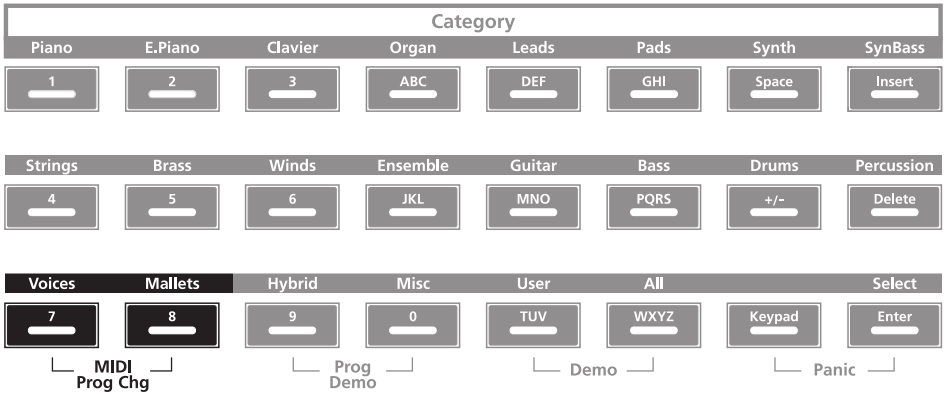
In Edit Setup Mode only, pressing both the **Chan / Param Up (^)** and the **Chan / Param Down (v)** buttons simultaneously will jump to a specific parameter. *See Param Jump Buttons on page 8-5.*

Reset Transposition



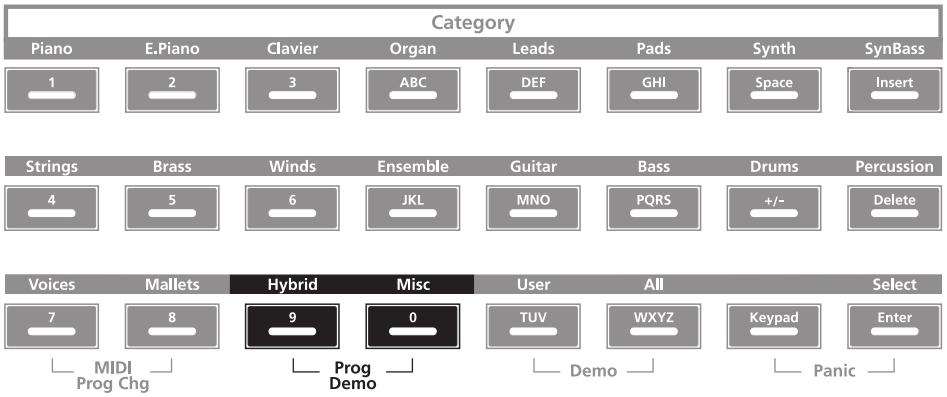
Pressing both Transpose + and Transpose – simultaneously will restore the current Program or Setup to having no transposition.

MIDI Program Change



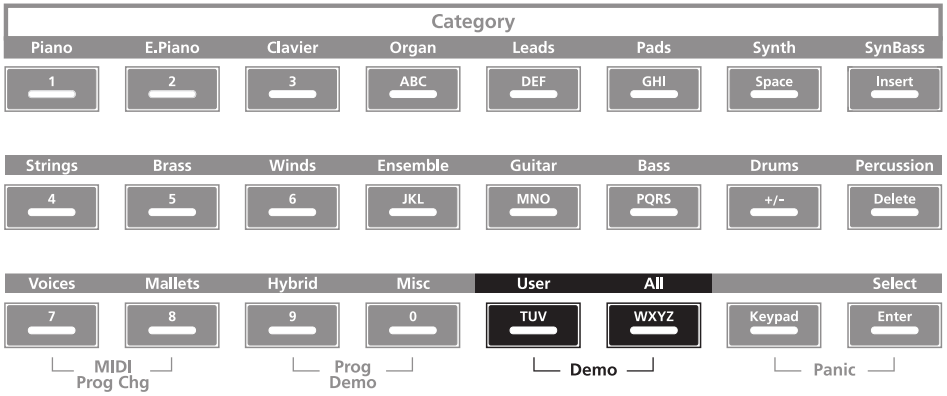
Pressing the **Voices** and **Mallets** category buttons enters the MIDI Program Change Function page (described in further detail in *Program Mode on page 5-1*). With the MIDI Program Change Function, you can send a MIDI Program Change message to any sound module in a MIDI chain connected to the SP5.

Program Demo



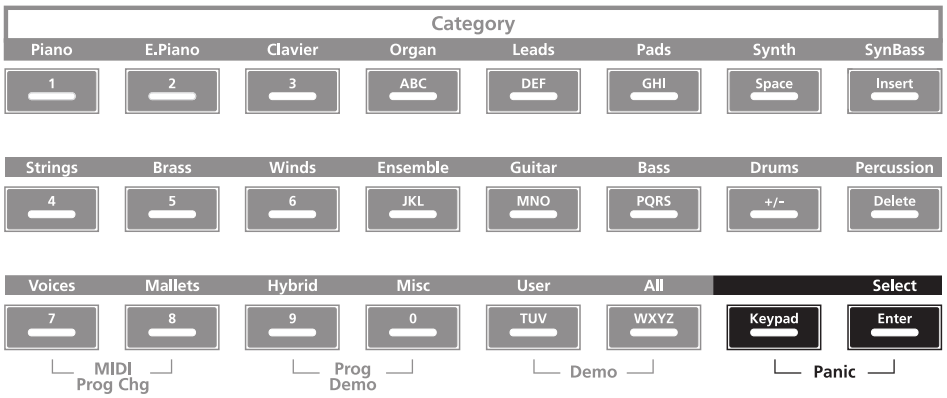
In Program Mode only, pressing the **Hybrid** and **Misc** category buttons performs the Program Demo Function. The Program Demo Function plays the demo song for the currently selected Program. If you press these buttons from any other Mode, the display shows the `...Not in Program Mode...` message. Press any button to exit Program Demo.

Demo



Pressing the **User** and **All** category buttons performs the Demo Function (described in further detail in *Demo Function on page 5-6*). With the Demo Function selected, you can hear a demo sequence that showcases many of the features of SP5.

Panic



Pressing the **Keypad** and **Enter** category buttons simultaneously deactivates all sounding notes and control messages and sends an "All Notes Off" message and an "All Controllers Off" message on all 16 MIDI channels.

Intuitive Entry (Easy Selection)

Intuitive Entry (Easy Selection) is the secondary function of the **Enter** button and is labelled **Select**.

Pressing the **Select** button with a button or key will perform easy selection in the following cases:

Select + Zone (1–4) Button

In Edit Setup Mode, it will jump to the selected Zone, leaving on the display the current parameter that is being edited. If the parameter is a Setup common parameter and not a Zone parameter, it will not do anything.

Select + controller

In Edit Setup Mode, pressing the **Select** plus controller (a slider, **Sw** button, Mod Wheel or any pedal) will jump to the first parameter of the selected controller in the current Zone. If you are entering a number (alphanumeric entry) and press **Enter**, this action will apply the chosen number.

Select + key

In Setup Mode or in Split Mode with the Split Key parameter selected, press the **Select** button then strike a key to set the split key.

Chapter 4
Terminology

This chapter provides definitions and descriptions for all of the SP5-specific terms used in this manual. Note that some of the terms are also used by other manufacturers. Since there are no standard definitions for some of these terms, they are described here to avoid confusion. All of these terms appear capitalized as proper nouns in this manual to make it easy to distinguish between the generic term and the SP5-specific term.

Object — Anything that can be named, saved, deleted, or edited (i.e., a Program or a Setup). See *Program Mode on page 6-1* and *Setup Mode on page 7-1* for more information on Objects.

Program — A factory-preset or user-programmed sound stored in ROM or flash memory. Each Program has parameters assigned to most of the controllers (sliders, **Sw** button, Mod Wheel, and pedals). Not all controllers have a parameter assigned in every Program. See *Program Mode on page 6-1* for more information on Programs.

Setup — A factory-preset or user-programmed MIDI performance preset consisting of four Zones, each with its own keyboard region, Program, MIDI channel, and controller assignments. See *Setup Mode on page 7-1* for more information on Setups.

Zone — A keyboard region of a Setup that has its own Program, MIDI channel, and controller assignments. See *Setup Mode on page 7-1* for more information on Zones.

Split — A division of Zones in a Setup. See *The Split Function on page 5-4* for more information on Splits.

Layer	An overlap of Zones in a Setup. See *The Layer Function on page 5-4* for more information on Layers.
MIDI Bank	The highest level of Program organization by the MIDI Specification; contains 128 Programs.
Mode	An operating status with a unique group of operations. See *The Operating Modes on page 5-1* for more information on Modes.
Pressure	More commonly known as After Touch in other keyboards.
Real Time Virtual Parameter (RTVP)	A set of real time controllable elements of a Program or effect that are assigned to the same control port (MIDI source).

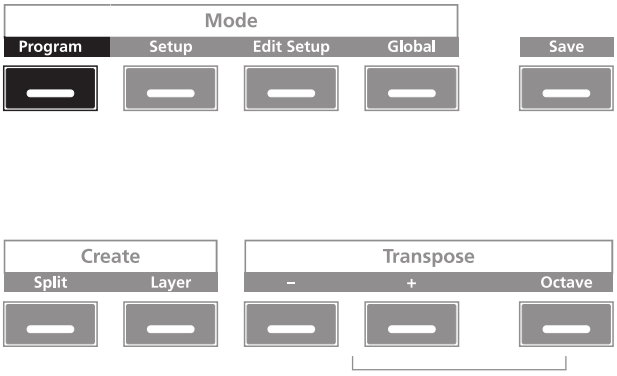
Chapter 5
The Operating Modes

This chapter will help you familiarize yourself with the operating Modes of the SP5. Each of the five Modes (Program, Setup, Edit Setup, Global, and System) has its own individual chapter—the four Functions (Split, Layer, MIDI Program Change, and Demo) are described in this chapter in *Functions on page 5-4*.

Program Mode

Program Mode is the default Mode of the SP5. In this Mode, you can select and play Programs as well as save a Program as a User Program. If you make changes to the entry values of the virtual parameters by moving the controllers (sliders, **Sw** button, Mod Wheel), you can save that Program with its changes as a User Program.

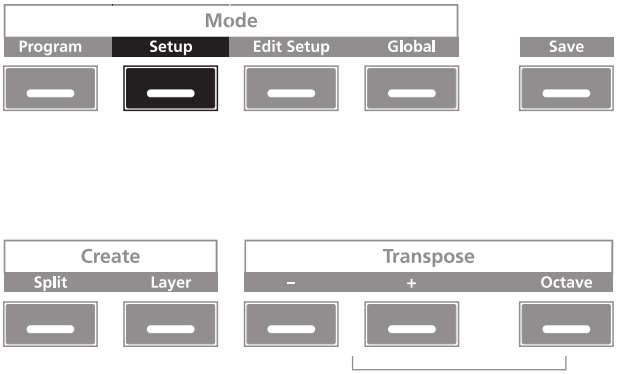
To enter Program Mode from another Mode, press the **Program** Mode button.



For more detailed information on Program Mode, see *Program Mode on page 6-1*.

Setup Mode

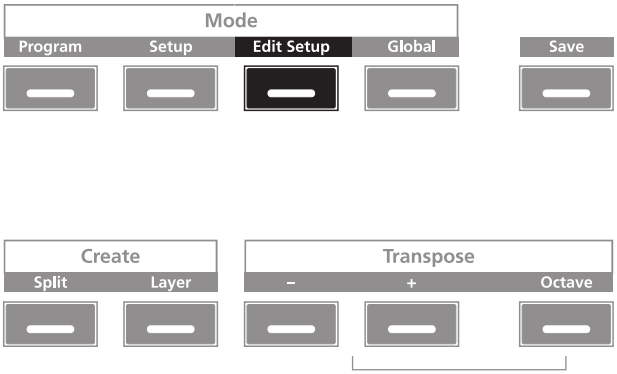
Setup Mode allows you to select and play Setups. Setups are configurations of four Zones, each of which may have its own Program and controller assignments. To enter Setup Mode from another Mode, press the **Setup** Mode button.



For more detailed information on Setup Mode, see *Setup Mode on page 7-1*.

Edit Setup Mode

Edit Setup Mode allows you to edit preexisting Setups. To enter Edit Setup Mode from another Mode, press the **Edit Setup** Mode button.

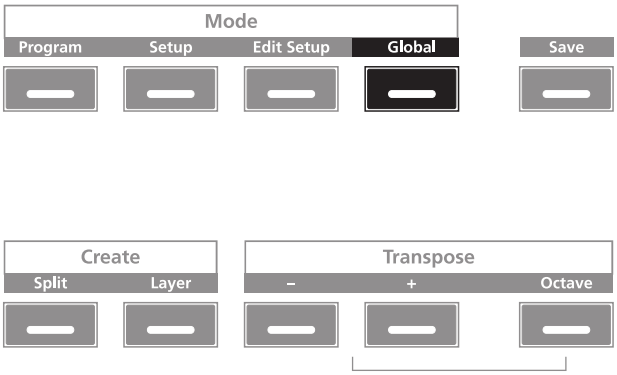


For more detailed information on Edit Setup Mode, see *Edit Setup Mode on page 8-1*.

Global Mode

CAUTION: READ *Global Mode on page 9-1* BEFORE USING GLOBAL MODE. THIS MODE CONTAINS CERTAIN OPERATIONS THAT CANNOT BE UNDONE.

Global Mode allows you to edit global parameters and MIDI settings, load and save User Programs and Setups, or restore factory defaults with a hard reset. To enter Global Mode from another Mode, press the **Global** Mode button.



System Mode

CAUTION: READ *System Mode on page 10-1* BEFORE ATTEMPTING TO ENTER SYSTEM MODE. THIS MODE CONTAINS CERTAIN OPERATIONS THAT CANNOT BE UNDONE.

System Mode allows you manage and upgrade the OS software of your SP5 as well as perform diagnostic tests of the instrument's various internal systems and processes. Note that the functions that you have access to in System Mode govern the operation of your SP5, so only use System Mode when you must perform essential maintenance tasks.

To enter System Mode, follow these steps:

1. Power off your SP5.
2. Press and the hold the **Shift** button, and power on the unit. Make sure to keep holding the **Shift** button unit the display shows the following (*vX.XX* represents the software version):

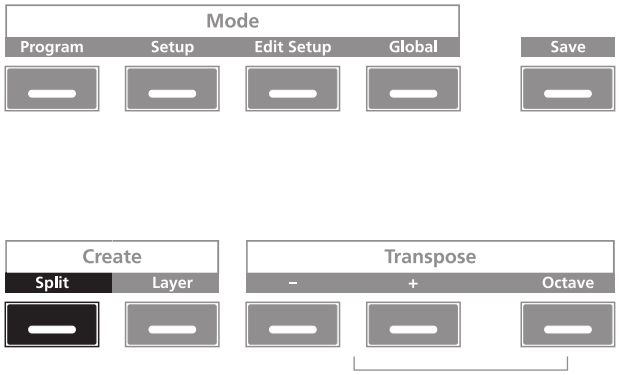
3. Release the **Shift** button—at this point, you are in System Mode.

Functions

In addition to the five primary Modes, there are four Functions. These Functions are not as complex as the primary Modes and are described below.

The Split Function

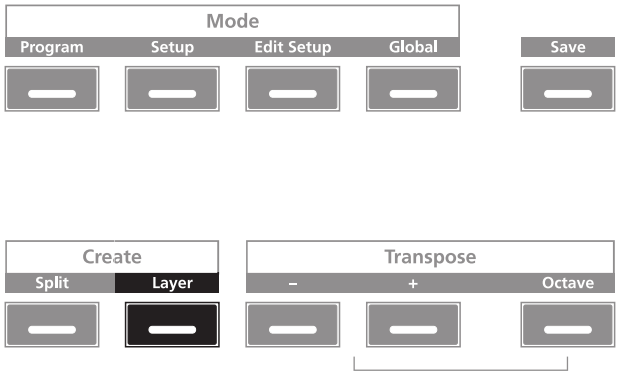
Pressing the **Split** Function button while in either Program or Setup Mode performs the Split Function. The Split Function allows you to split Programs and Setups such that keys in one region of the keyboard produce different sounds than another region.



Creating Splits in Program Mode is slightly different from creating Splits in Setup Mode. See *Program Mode on page 6-1* (for Splits in Program Mode) and *The Split Function on page 7-5* (for Splits in Setup Mode).

The Layer Function

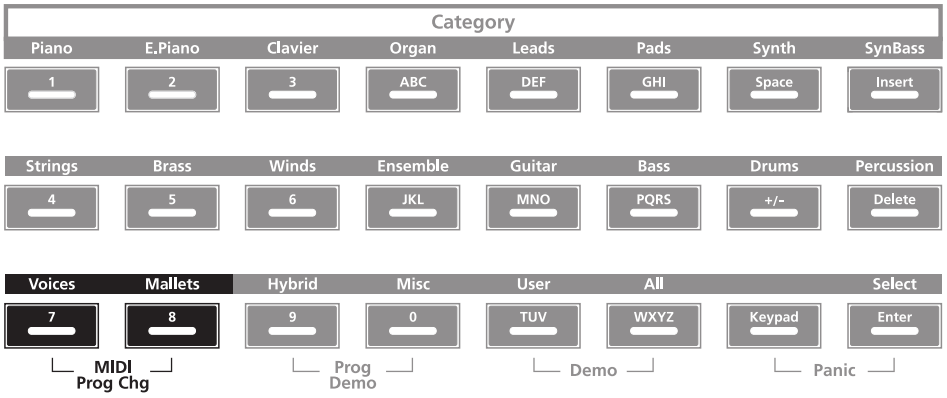
Pressing the **Layer** Function button while in either Program or Setup Mode performs the Layer Function. The Layer Function allows you to layer Programs and Setups such that more than one sound can be produced by striking one key.



Creating Layers in Program Mode is slightly different from creating Layers in Setup Mode. See *The Layer Function on page 6-8* (for Layers in Program Mode) and *The Layer Function on page 7-7* (for Layers in Setup Mode).

MIDI Program Change Function

Pressing both the **Voices** and **Mallets** category buttons simultaneously takes you to the MIDI Program Change Function page.



With this Function, you can send a MIDI Program Change message to connected sound modules. Doing so will not affect the local sound (that is, it will not affect the currently selected Program on the SP5). Select the **Keypad** category button to enter Program numbers from **0** to **2,097,151**—this seemingly random number comes from the fact that, by the General MIDI Standard, you can send Program messages for up to **16,384** MIDI Banks (0–16,383), each containing up to **128** Programs.

When a message is sent with the MIDI Program Change Function, any Global setting that might disable MIDI Transmit or might disable MIDI Program Change is ignored. After the MIDI Program Change message is sent, the SP5 will automatically return to the previous Mode.

A MIDI Program Change message can be canceled by pressing any button other than the alphanumeric entry and Value buttons, or turning the Alpha Wheel.

Differing Program Numbers

If the Programs on your connected sound module are organized by MIDI Bank with each Program number being between **0** and **127**, then use the following formula to determine what number to enter for the MIDI Program Change Function:

*[MIDI Bank number] * 128 + [Program number]*

So for example, if you want to send a MIDI Program Change message for **Program 83** in **MIDI Bank 4**, you would enter the number **595**—this number is equal to 4 * 128 + 83.

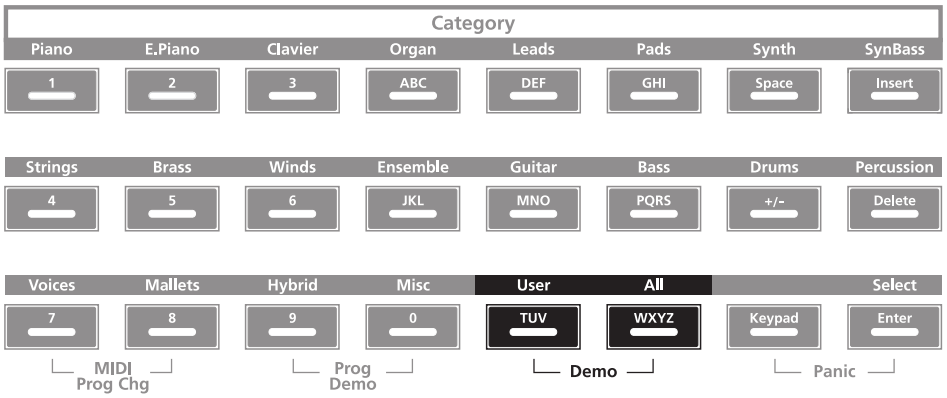
If the Programs on your connected sound module are organized by MIDI Bank with each Program number being between **1** and **128**, then use the following formula to determine what number to enter in MIDI Program Change Mode:

*[MIDI Bank number] * 128 + [Program number] - 1*

So for example, if you want to send a MIDI Program Change message for **Program 83** in **MIDI Bank 4**, you would enter the number **594**—this number is equal to 4 * 128 + (83 - 1).

Demo Function

Pressing the **User** and **All** Category buttons simultaneously performs the Demo Function.



Entering this Mode, the SP5 will play a built-in demo sequence designed to demonstrate the capabilities of the instrument. While the demo sequence plays, the top line of the display shows the text Demo and the Demo number as well as the total the number of available Demos. The bottom line of the display shows the Demo name.

The **User** and **All** buttons LEDs will be blinking, indicating that the instrument is in Demo Mode. Use the Alpha Wheel, Value buttons or the **Param** / **Chan Up** or **Down** buttons to select another demo.

Pressing any button, other than the buttons listed above, exits the Demo Function.

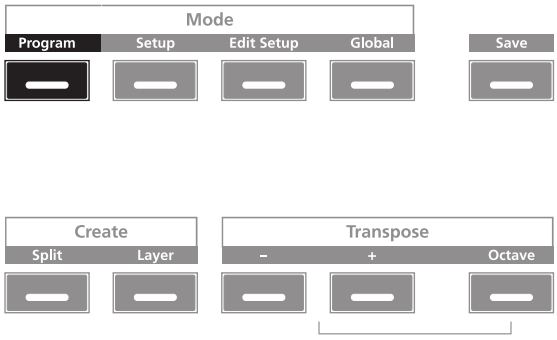
Chapter 6
Program Mode

This chapter will help you familiarize yourself with the features of Program Mode.

Programs are essentially the different sounds of a MIDI instrument—they are preset sound Objects equivalent to the "patches," "presets," or "voices" that you find on other synths.

About Program Mode

Program Mode is the default Mode of the SP5—the SP5 starts up in this Mode. To enter Program Mode from another Mode, press the Program Mode button. While you are in Program Mode, the **Program** button's LED is illuminated. The SP5 starts up with the default Program in the Piano category selected, either Program 1 (factory default) or a Program you pick as a favorite, see *Choosing Favorites on page 6-5*. If you enter Program Mode from another Mode, the last selected Program will be the current Program in the current MIDI Channel.



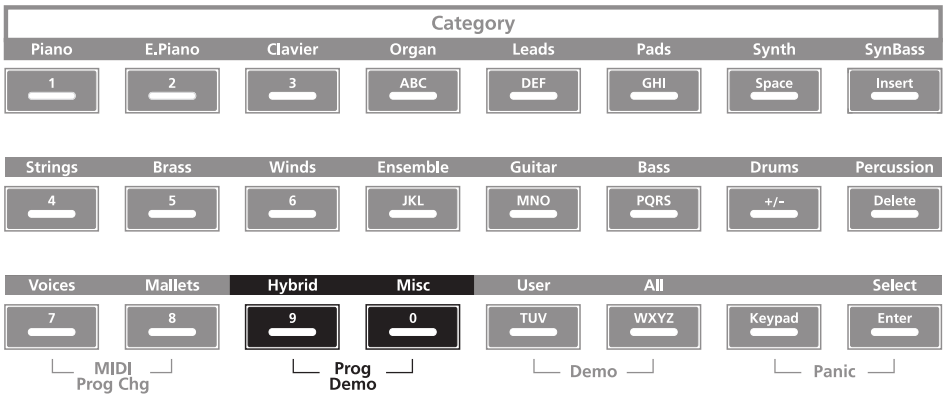
Selecting Programs

When you are in Program Mode, there a few ways to select Programs.

- **By Category**—press one of these buttons to select Programs by instrument type or use the Alpha Wheel and Value buttons to move through the categories.
- **Numerically**—press the **All** button and use the Alpha Wheel or Value buttons to scroll through the available Programs (including User Programs).
- **User Programs only**—press the **User** button and use the Alpha Wheel or Value buttons to scroll through the saved User Programs.
- **ID number**—press the **Keypad** Category button and use the secondary function (alphanumeric entry) of the Category buttons to type the Program ID number, then press the **Enter** button. (Press the **Keypad** Category button again to disable it.)

Program Demo

If you want to quickly hear what a Program sounds like, try the Program Demo Function.



In Program Mode only, pressing the **Hybrid** and **Misc** category buttons performs the Program Demo Function. The Program Demo Function plays the demo song for the currently selected Program. If you press these buttons from any other Mode, the display shows the `...Not in Program Mode...` message. Press any button to exit Program Demo.

Press any button to exit Program Demo.

The Display

In Program Mode, the top line of the display shows the current Mode, MIDI transposition and MIDI Channel. The bottom line shows the Program ID number and name.

Pop Up Messages

Some actions cause the display to show pop up messages. After a short time the display returns to show the current Program.

Alpha Wheel & Previous (–) and Next (+) Value Buttons

Use the Alpha Wheel or the Value buttons, below the display, to change the current Program—turning the Alpha Wheel counter-clockwise or pressing the **Previous** button will select the previous Program and turning the Alpha Wheel clockwise or pressing the **Next** button will select the next Program. When the highest or lowest Program is reached, the list will wrap back to the last or first Program respectively. If you are using the Alpha Wheel or the Value buttons to view Programs by Category, the list moves through each Category. If you are using Alpha Wheel or the Value buttons with the **All** or **User** buttons selected, the list is by ID number.

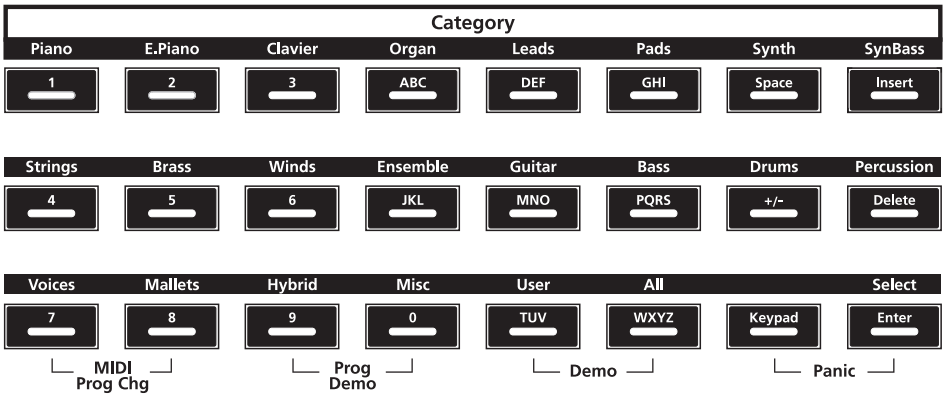
Value Jump Buttons

In Program Mode, pressing the Value Jump buttons selects the first Program of next Category or the default Program, if any, of the current Category. The destination of the first jump depends on where you are in the current Category.

For example, if the current Program is the first Program of a Category, pressing the Value Jump buttons selects the default (favorite) Program of that Category. If the default is the same as the first (no favorite saved), pressing the Value Jump buttons selects the first Program of the next Category. Pressing the Value Jump buttons yet again selects the default Program for that Category, if any, or the first Program of the next Category, etc. This continues each time you press the Value Jump buttons. For more information on choosing a new default Program, see *Choosing Favorites on page 6-5*.

If the **All** or **User** button is selected, Value Jump is a little different. Pressing the **Next** and **Previous** buttons simultaneously value jumps the current Program to next Program in intervals of eight (Value Jump = current Program + eight).

Category Buttons



The Category buttons are on the right side of the front panel. Twenty of the 24 buttons in this section allow you to select Programs by instrument type simply by pressing a button. The remaining four buttons allow you to view Programs as a list or select them by their ID number. You can select one Category button at a time and the current Category button's LED is lit.

Press one of the instrument Category buttons, then turn the Alpha Wheel clockwise or press the **Next** button to advance to the next Program in the Category. When you reach the end of a Category, the SP5 automatically advances to the beginning of the next Category. This will also work in reverse if you turn the Alpha Wheel counter-clockwise or press the **Previous** button. In this case when you reach the beginning of a Category, the SP5 automatically advances to the end of the previous Category.

The **All** and the **User** buttons are a little different; they allow you to view Programs in numeric order. Turn the Alpha Wheel or use the Value buttons to scroll through the list of Programs. Press the **All** button to view the Programs (including User Programs) by ID number or press the **User** button to view User Programs by ID number. When you select either the **All** or **User** button, its LED lights. If you have yet to save a User Program and select the **User** button, the display shows a `No user programs` message.

Alphanumeric Data Entry

You can use the **Keypad** button to directly enter a Program ID number. The secondary alphanumeric data entry function of the Category buttons is printed in white ink.. Press the **Keypad** button and enter the ID number using the alphanumeric data entry buttons, then press the **Enter** button to confirm it. The **Keypad** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

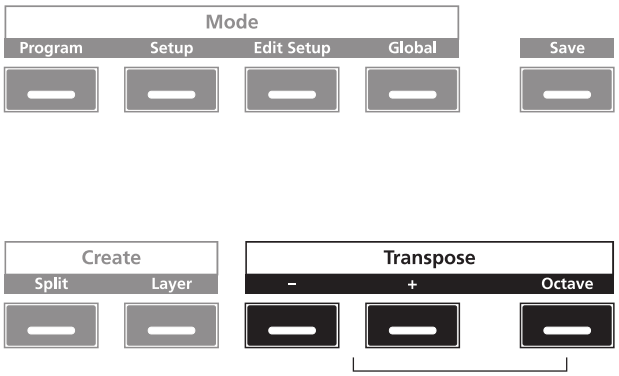
If you enter a Program ID number for a Program that does not exist, the display shows the ID number you entered and `Not found`. You can enter another Program ID number or press the **Keypad** button to disable it (LED off). If you disable the **Keypad** button, the display returns to show the current Program.

Choosing Favorites

You can choose a favorite (or new default) Program within each Category. The Program you choose will be recalled each time you press that Category button even after power cycles. While in Program Mode, select a Category button. Use the Alpha Wheel or the Value buttons to select the Program you want as a favorite for that Category. To save it, press and hold the Category button. When it saves, you will see the following pop up message in the display.

You can only save Programs that belong to the Category. If you try to save a favorite and the Program does not belong to the Category, you will see the following pop up message in the display.

Transposition



Pressing the **Transpose +** button will transpose the current Program up by one semitone; pressing the **Transpose –** button will transpose the current Program down by one semitone. Pressing both **Transpose +** and **Transpose –** simultaneously will restore the current Program to having no transposition.

If the **Octave** button is active, pressing the **Transpose +** or **Transpose –** buttons will transpose the current Program by octaves (+/– 12 semitones). The **Octave** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

The maximum transposition value is +/–36. If the **Octave** button is active and the current transposition value is greater than +24, pressing the **Transpose +** button will not increase the value as it would be out of range. If the **Octave** button is active and the current transposition value is less than –24, pressing the **Transpose –** button will not decrease the value as it would be out of range.

The LEDs of the **Transpose** buttons indicate whether the current Program is transposed up (**Transpose +** LED is lit) or transposed down (**Transpose –** LED is lit). When there is no transposition, neither **Transpose** button is lit.

Real Time Virtual Parameters

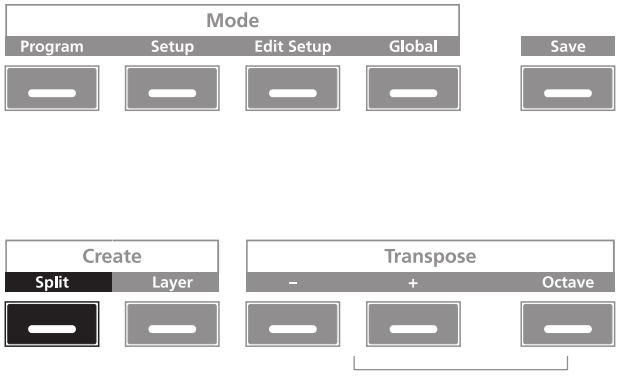
Real Time Virtual Parameters (RTVP) is the set of real time controllable elements of a program or an effect that are assigned to the same control port (MIDI source).

You can see a Program's assigned Real Time Virtual Parameters simply by selecting a physical controller. Programs have virtual parameters assigned to sliders, pedals, the modulation wheel or the **Sw** button. Moving the controller changes the value of the virtual parameter. Any time you do this, the display shows the change as a pop up message, then returns to current Program display.

If you make changes to the current Program using any of the controllers, the **Save** button's LED lights to indicate that a change has been made to that Program. For more information on the **Save** button, see *Saving a User Program on page 6-11*.

The Split Function

Pressing the **Split** button while in Program Mode will perform the Split Function. The Split Function allows you to split Programs such that keys in one region of the keyboard produce different sounds than another region.



When you create a Split in a Program, you are in fact creating a Setup (see *Setup Mode on page 7-1* for more information on Setups). As previously described, Setups are configurations of four Zones, each of which may have its own Program and controller assignments. Once you've created a Split in a Program, creating another Split will activate another Zone within what is now a Setup. If the Setup already has its maximum of four active Zones and you press the **Split** Function button, then a message will briefly appear on the display indicating that you have reached the maximum of four active Zones.

The Split Function is convenient, as you do not need to go through Edit Setup Mode to delineate Zones, assign Programs, etc. You can simply hit the **Split** button, and the SP5 automatically activates another Zone in the Setup for you, with default values for parameters of the Split. The newly-activated Zone is the "Secondary Voice". The currently active Zone(s) constitute the "Primary Voice".

There are four parameters (described below) that determine the behavior of the Split. You can view these parameters by scrolling through them using the **Chan / Param** buttons. To edit them, use the Alpha Wheel or Value buttons. The Split Function will initially have the last used Split Program, Split Volume, Split Key, and Split Transposition, or defaults for these if this is the first time since power-up.

The **Keypad** button is active for the Split Volume and Split Transposition parameters. For these parameters, you can enter a new value using the alphanumeric data entry buttons. The **Keypad** button is also active for the Split Key parameter, you can directly select the Split Key by holding down the **Select** button and then striking the desired key on the keyboard.

Split Program

This parameter determines the Program for the Secondary Voice (left-hand side) of the Split—the current Program is the Program for the Primary Zone (right-hand side) of the Split. The Secondary Voice will be the last used Split Program or the default Program (ID number **236 Motown Bass**) if this is the first time your using the Split Function since power-up. Any Program can be chosen for this parameter.

Split Volume

This parameter determines the relative volumes of the Secondary and Primary Voices—it can be set to any number between **-127** and **127**. By default, the Split Volume is set to **0**, which results in both Voices having the same volume. When set to a positive number, the volume for the Secondary Voice is increased while the volume for the Primary Voice is decreased—doing the opposite has the opposite effect on the relative volumes of the Voice. Value Jump resets the volume to 0.

Split Key

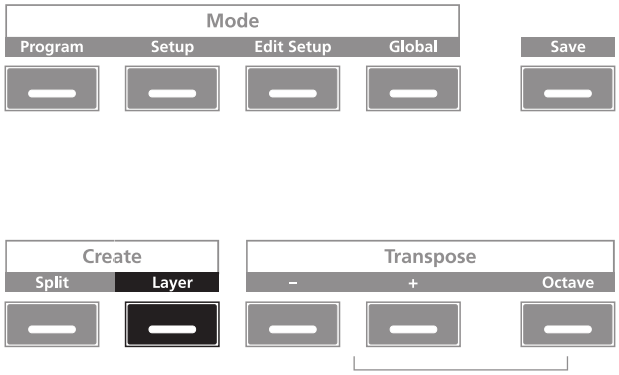
This parameter determines the boundary of the Split—it can be set to any number between **21** (A0) and **108** (C8). By default, the Split Key is set to **60** (C4, or middle C). The chosen key is the highest note in the Secondary Voice—one note above this note is the lowest note in the Primary Voice.

Split Transposition

This parameter determines the transposition of the Secondary Voice relative to that of the Primary Voice—it can be set to **-24**, **-12**, **0**, **12**, and **24**. By default, Split Transposition is set to **0**. Note that if the Primary Voice is transposed, then the Secondary Voice will be transposed by the same amount in addition to being transposed by the amount set for the Split Transposition.

The Layer Function

Pressing the **Layer** button while in Program Mode will perform the Layer Function. The Layer Function allows you to layer Programs and Setups such that more than one sound can be produced by striking one key.



When you create a Layer in a Program, you are in fact creating a Setup (see *Setup Mode on page 7-1* for more information on Setups). As previously described, Setups are configurations of four Zones, each of which may have its own Program and controller assignments. Once you've created a Layer in a Program, creating another Layer will activate another Zone within what is now a Setup. If the current Setup already has its maximum of four active Zones and you press the **Layer** Function button, then a message will briefly appear on the display indicating that you have reached the maximum of four active Zones.

The Layer Function is convenient, as you do not need to go through Edit Setup Mode to delineate Zones, assign Programs, etc. You can simply hit the **Layer** button, and the SP5 automatically activates another Zone in the Setup for you, with default values for parameters of the Layer.

There are three parameters (described below) that determine the behavior of the Layer. You can view these parameters by scrolling through them using the **Chan / Param** buttons. To edit them, use the Value buttons or the Alpha Wheel. The Layer will initially have the last used Layer Program, the last Layer Volume, and the last Layer Transposition, or defaults for these if this is the first time since power-up.

When using the Layer Function, the **Keypad** button is active for the Layer Volume and Layer Transposition parameters. For these parameters, you can enter a new value using the alphanumeric data entry buttons.

Layer Program

This parameter determines the Program for the Secondary Voice—the current Program is the Program for the Primary Voice. The Secondary Voice will be the last used Layer Program or the default Program (ID number **634 Add a Pad 2**) if this is the first time your using the Layer Function since power-up. Any Program can be chosen for this parameter.

Layer Volume

This parameter determines the relative volumes of the Secondary and Primary Voices—it can be set to any number between **-127** and **127**. By default, the Layer Volume is set to **0**, which results in both Voices having the same volume. When set to a positive number, the volume for the Secondary Voice is increased while the volume for the Primary Layer is decreased—doing the opposite has the opposite effect on the relative volumes of the Layers.

Layer Transposition

This parameter determines the transposition of the Secondary Voice relative to that of the Primary Voice—it can be set to **-24**, **-12**, **0**, **12**, and **24**. By default, Layer Transposition is set to **0**. Note that if the Primary Voice is transposed, then the Secondary Voice will be transposed by the same amount in addition to being transposed by the amount set for the Layer Transposition.

Changing the Transmit MIDI Channel

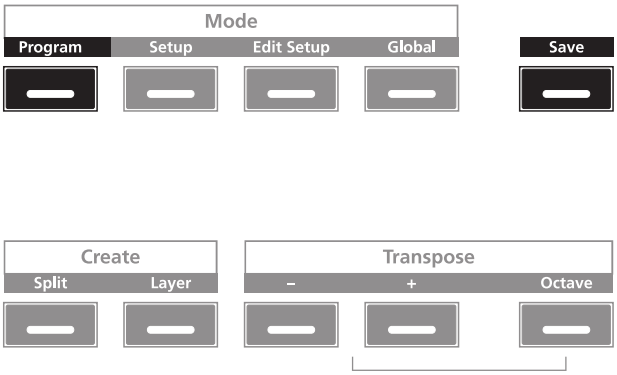
The current MIDI channel is in the top line of the display. Pressing the **Chan / Param Up (^)** or **Down (v)** button changes the MIDI transmit channel, incrementing or decrementing it respectively. Pressing both **Chan / Param Up (^)** and **Down (v)** at the same time will reset the current MIDI channel to **1**.

If a MIDI Channel is disabled, the Program name is shown with parenthesis. MIDI Channels are enabled/disabled in Global Mode, see *Channel Enable (ChanEn) on page 9-4*.

Panic

Pressing the **Keypad** and **Enter** category buttons simultaneously deactivates all sounding notes and control messages and sends an "All Notes Off" message and an "All Controllers Off" message on all 16 MIDI channels.

User Programs



If you make changes to the current Program using any of the controllers, the **Save** button's LED lights to indicate that a change has been made to that Program. To save the changes to the current Program, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights. Pressing the **Save** button calls up the standard Save Dialog. The display shows the following:

The bottom line of the display shows the first available ID number and the current Program name. You can save Programs with ID numbers from 1024 to 1087. When you initially press the **Save** button, the SP5 always selects the next available ID number and displays the current Program name.

In the Save Dialog, there are two parameters available which allow you to specify the ID number and rename the Program. Use the first parameter to change the ID number and the second to rename the Program. While the **Save** button LED is blinking, press one of the **Chan / Param** buttons to switch between the two parameters.

Changing ID Numbers

To change the ID number, turn the Alpha Wheel or use the Value buttons to select the number. You can also use the secondary alphanumeric functions of the Category buttons, to type in a ID number, then press the **Enter** button. Note that if you select a number out of range (greater than 1087) and press the **Enter** button, the ID number won't change.

Naming a User Program

To rename the Program, first press one of the **Chan / Param** buttons to change the parameter. You should see the following in the display:

The bottom line of the display shows the current Program name. Note that by default the first character is selected and the cursor is under it. New Program names can total 16 characters in length. (Note that Program names that are 16 characters in length cause the ID number and Program name to scroll marquee-style in the display.) Use the secondary alphanumeric functions of the Category buttons to enter the new Program name.

Press the **Previous** or **Next** button to move the cursor. Press the **+/-** button to switch between upper and lower case characters (all characters will be upper case until you press the **+/-** button again). Use the **Space** button to change the current character to a space, the **Insert** button to insert a blank space (all the characters to the right will move one space to the right), and the **Delete** button to delete the current character (all the characters to the right will move one space to the left).

Saving a User Program

When you finish changing the ID number and naming the Program, the **Save** button LED should still be blinking. Press the **Save** button to complete the process. Saved User Programs have an asterisk between the ID number and Program name.

Deleting User Programs

To delete a User Program, select the Program and press the **Keypad** Category button. After you press the **Keypad** button, press the **Delete** button. The **Delete** button's LED lights and begins to blink. The display shows the following message.

Press the **Next** button to delete the Program or any other button to cancel. Note that the **Keypad** button is still active, press the button again to disable it.

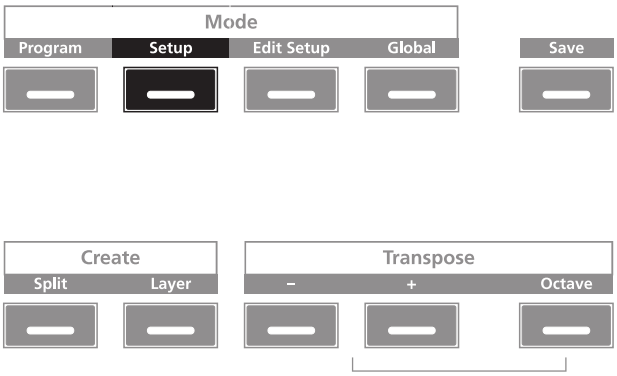
Chapter 7
Setup Mode

This chapter will help you familiarize yourself with the features of Setup Mode.

Setups are configurations of four Zones (explained below in About Zones), each of which may have its own Program, controller assignments, and MIDI transmit channel.

About Setup Mode

To enter Setup Mode from another Mode, press the **Setup** Mode button. While you are in Setup Mode, the **Setup** button's indicator LED is illuminated. By default, when you enter Setup Mode after a start-up of your instrument, Setup **0** will be the current Setup. If you enter Setup Mode from another Mode, the last selected Setup will be the current Setup.



Selecting Setups

When you are in Setup Mode, there a few ways to select Setups.

- **All button**—press the **All** button and use the Alpha Wheel or Value buttons to scroll through the available Setups (including User Setups).
- **User button**—press the User button and use the Alpha Wheel or Value buttons to scroll through the saved User Setups only.
- **ID number**—press the **Keypad** Category button and use the secondary alphanumeric data entry function of the Category buttons to type the Setup ID number, then press the **Enter** button. (Press the **Keypad** Category button again to disable it.)

The Display

In Setup Mode, the top line of the display shows the current Mode and MIDI transposition. The bottom line shows the Setup ID number and name.

Pop Up Messages

Some actions cause the display to show pop up messages. After a short time the display returns to show the current Setup.

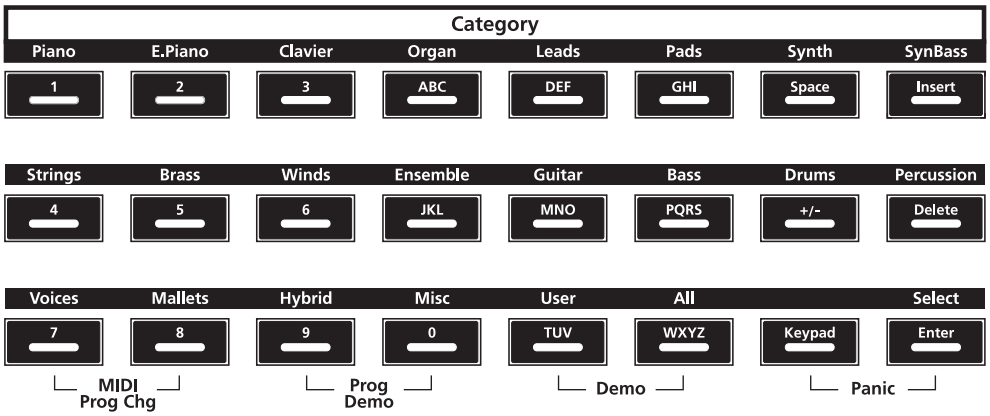
Alpha Wheel & Previous (–) and Next (+) Value Buttons

Use the Alpha Wheel or the Value buttons, below the display, to change the current Setup—turning the Alpha Wheel counter-clockwise or pressing the **Previous** button will select the previous Setup and turning the Alpha Wheel clockwise or pressing the **Next** button will select the next Setup. When the highest or lowest Setup is reached, the list will wrap back to the last or first Setup respectively.

Value Jump Buttons

Pressing the **Next** and **Previous** buttons simultaneously value jumps the current Setup to the next Setup in intervals of eight (Value Jump = current Setup + eight).

Using the Category Buttons



When you enter Setup Mode, either the **All** or **User** Category button is active. Use the Alpha Wheel or the Value buttons, to scroll through the list of Setups.

When you select either the **All** or **User** button, its LED lights. If you have yet to save a User Program and select the **User** button, the display shows a `No user setups` message.

You can use the **Keypad** button to directly enter a Setup ID number. Press the **Keypad** button and enter the ID number using the alphanumeric data entry buttons, then press the **Enter** button to confirm it. The **Keypad** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

If you enter a ID number for a Setup that does not exist, the display shows the ID number you entered and `Not found`. You can enter another Setup ID number or press the **Keypad** button to disable it (LED off). If you disable the **Keypad** button, the display returns to show the current Setup. Note that either the **All** or **User** button will be active.

User Setups have an asterisk between the ID number and Setup name.

Choosing Favorite Setups

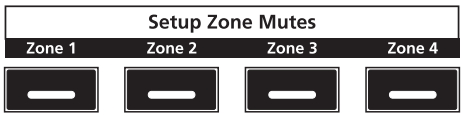
You can choose a favorite Setup and save it to one of the twenty instrument Category buttons. Use the Alpha Wheel or the Value buttons to select the Setup you want as a favorite. To save it, press and hold the Category button. When it saves, you will see the following pop up message in the display. You can save one Setup per Category button.

About Zones

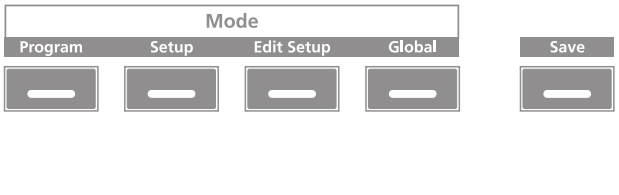
Zones are the independent regions of the keyboard that make up a Setup. A Setup has four Zones, each one having its own Program, controller assignments, and MIDI transmit channel. Zones can be mutually exclusive regions of the keyboard, or they can overlap.

Muting Zones

Pressing a Zone button will mute or unmute the Zone. An active/unmuted Zone button has a lit LED. The LED of an inactive/muted Zone button is not lit.



Transposition



Pressing the **Transpose +** button will transpose the current Setup up by one semitone; pressing the **Transpose –** button will transpose the current Program down by one semitone. Pressing both **Transpose +** and **Transpose –** simultaneously will restore the current Program to having no transposition.

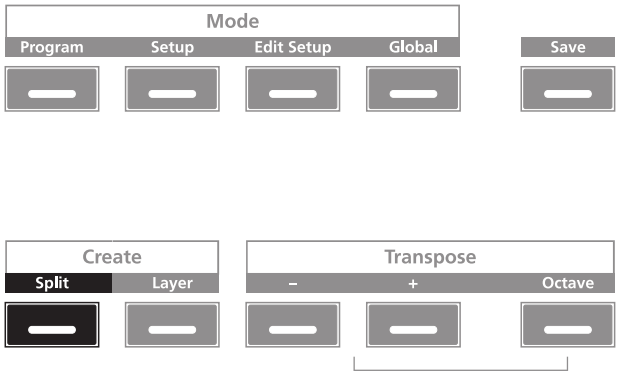
If the **Octave** button is active, pressing the **Transpose +** or **Transpose –** buttons will transpose the current Setup by octaves (+/– 12 semitones). The **Octave** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

The maximum transposition value is +/–36. If the **Octave** button is active and the current transposition value is greater than +24, pressing the **Transpose +** button will not increase the value as it would be out of range. If the **Octave** button is active and the current transposition value is less than –24, pressing the **Transpose –** button will not decrease the value as it would be out of range.

The LEDs of the **Transpose** buttons indicate whether the current Setup is transposed up (**Transpose +** LED is lit) or transposed down (**Transpose –** LED is lit). When there is no transposition, then neither **Transpose** button is lit.

The Split Function

Pressing the **Split** button while in Setup Mode performs the Split Function. The Split Function allows you to split Setups such that keys in one region of the keyboard produce different sounds than another region.



When you create a Split in a Setup, you are in fact activating a Zone within the current Setup. If the current Setup already has its maximum of four active Zones and you press the **Split** Function button, then a message will appear on the display indicating that you have reached the maximum of four active Zones. The Split Function is convenient, as you do not need to go through Edit Setup Mode to delineate Zones, assign Programs, etc. You can simply hit the **Split** Function button, and the SP5 automatically activates another Zone in the Setup for you, with default values for parameters of the Split.

The newly-activated Zone is the "Secondary Voice". The currently active Zone(s) constitute the "Primary Voice".

There are four parameters (described below) that determine the behavior of the Split. You can view these parameters by scrolling through them using the **Chan / Param** buttons. To edit them, use the Alpha Wheel or Value buttons. The Split Function will initially have the last used Split Program, Split Volume, Split Key, and Split Transposition, or defaults for these if this is the first time since power-up.

When using the Split Function, the **Keypad** button is active for the Split Volume and Split Transposition parameters. For these parameters, you can enter a new value using the alphanumeric data entry buttons. The **Keypad** button is also active for the Split Key parameter, you can directly select the Split Key by holding down the **Select** button and then striking the desired key on the keyboard.

Split Program

This parameter determines the Program for the Secondary Voice (left-hand side) of the Split—the current Program is the Program for the Primary Zone (right-hand side) of the Split. The Secondary Voice will be the last used Split Program or the default Program (ID number **236 Motown Bass**) if this is the first time your using the Split Function since power-up. Any Program can be chosen for this parameter.

Split Volume

This parameter determines the relative volumes of the Secondary and Primary Voices—it can be set to any number between **-127** and **127**. By default, the Split Volume is set to **0**, which results in both Voices having the same volume. When set to a positive number, the volume for the Secondary Voice is increased while the volume for the Primary Voice is decreased—doing the opposite has the opposite effect on the relative volumes of the Voice.

Split Key

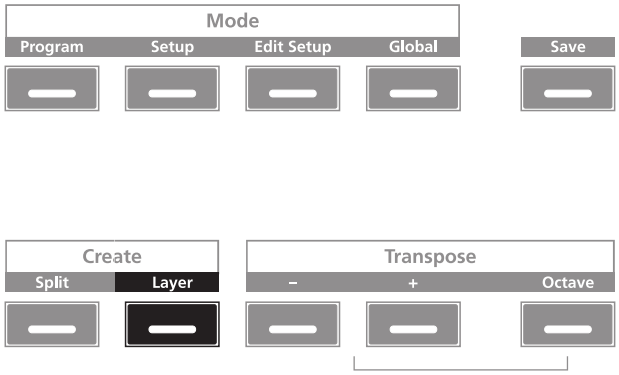
This parameter determines the boundary of the Split—it can be set to any number between **21** (A0) and **108** (C8). By default, the Split Key is set to **60** (C4, or middle C). The chosen key is the highest note in the Secondary Voice—one note above this note is the lowest note in the Primary Voice.

Split Transposition

This parameter determines the transposition of the Secondary Voice relative to that of the Primary Voice—it can be set to **-24**, **-12**, **0**, **12**, and **24**. By default, Split Transposition is set to **0**. Note that if the Primary Voice is transposed, then the Secondary Voice will be transposed by the same amount in addition to being transposed by the amount set for the Split Transposition.

The Layer Function

Pressing the **Layer** button while in Setup Mode performs the Layer Function. The Layer Function allows you to layer Programs and Setups such that more than one sound can be produced by striking one key.



When you create a Layer in a Setup, you are in fact activating a Zone within the current Setup. If the current Setup already has its maximum of four active Zones and you press the **Layer** Function button, then a message will appear on the display indicating that you have reached the maximum of four active Zones. The Layer Function is convenient, as you do not need to go through Edit Setup Mode to delineate Zones, assign Programs, etc. You can simply hit the **Layer** Function button, and the SP5 automatically activates another Zone in the Setup for you, with default values for parameters of the Layer.

There are three parameters (described below) that determine the behavior of the Layer. You can view these parameters by scrolling through them using the **Chan / Param** buttons. To edit them, use the Value buttons or the Alpha Wheel. The Layer will initially have the last used Layer Program, the last Layer Volume, and the last Layer Transposition, or defaults for these if this is the first time since power-up.

When using the Layer Function, the **Keypad** button is active for the Layer Volume and Layer Transposition parameters. For these parameters, you can enter a new value using the alphanumeric data entry buttons.

Layer Program

This parameter determines the Program for the Secondary Voice—the current Program is the Program for the Primary Voice. The Secondary Voice will be the last used Layer Program or the default Program (ID number **634 Add a Pad 2**) if this is the first time your using the Layer Function since power-up. Any Program can be chosen for this parameter.

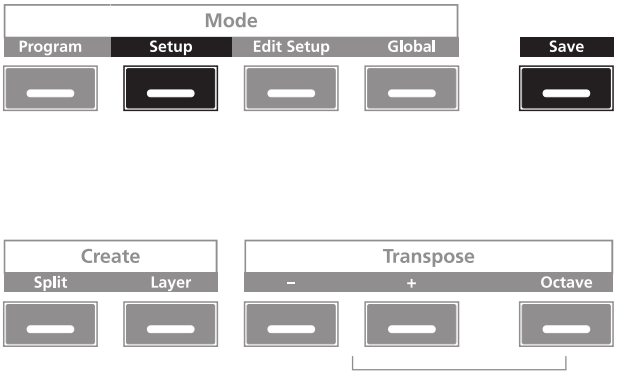
Layer Volume

This parameter determines the relative volumes of the Secondary and Primary Voices—it can be set to any number between **-127** and **127**. By default, the Layer Volume is set to **0**, which results in both Voices having the same volume. When set to a positive number, the volume for the Secondary Voice is increased while the volume for the Primary Layer is decreased—doing the opposite has the opposite effect on the relative volumes of the Layers.

Layer Transposition

This parameter determines the transposition of the Secondary Voice relative to that of the Primary Voice—it can be set to **-24**, **-12**, **0**, **12**, and **24**. By default, Layer Transposition is set to **0**. Note that if the Primary Voice is transposed, then the Secondary Voice will be transposed by the same amount in addition to being transposed by the amount set for the Layer Transposition.

User Setups



To save the changes to the current Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights. Pressing the **Save** button opens the Save Dialog. The display shows the following:

The bottom line of the display shows the first available ID number and the current Setup name. You can save Setups with ID numbers from 1024 to 1087. When you initially press the **Save** button, the SP5 always selects the next available ID number and displays the current Setup name.

In the Save Dialog, there are two parameters available which allow you to specify the ID number and rename the Setup. Use the first parameter to change the ID number and the second to rename the Setup. While the **Save** button's LED is blinking, press one of the **Chan / Param** buttons to switch between the two parameters.

Changing ID Numbers

To change the ID number, turn the Alpha Wheel or use the Value buttons to select the number. You can also use the secondary alphanumeric functions of the Category buttons, to type in a ID number, then press the **Enter** button. Note that if you select a number out of range (greater than 1087) and press the **Enter** button, the ID number won't change.

Naming a User Setup

To rename the Setup, first press one of the **Chan / Param** buttons to change the parameter. You should see the following in the display:

The bottom line of the display shows the current Setup name. Note that by default the first character is selected and the cursor is under it. New Setup names can total 16 characters in length. (Note that Setup names that are 16 characters in length cause the ID number and Setup name to scroll marquee-style in the display.) Use the secondary alphanumeric functions of the Category buttons to enter the new Setup name.

Press the **Previous** or **Next** button to move the cursor. Press the **+/-** button to switch between upper and lower case characters (all characters will be upper case until you press the **+/-** button again). Use the **Space** button to change the current character to a space, the **Insert** button to insert a blank space (all the characters to the right will move one space to the right), and the **Delete** button to delete the current character (all the characters to the right will move one space to the left).

Saving a User Setup

When you finish changing the ID number and naming the Setup, the **Save** button LED should still be blinking. Press the **Save** button to complete the process. Saved User Setups have an asterisk between the ID number and Setup name.

Deleting User Setups

To delete a User Setup, select the Setup and press the **Keypad** Category button. After you press the **Keypad** button, press the **Delete** button. The **Delete** button's LED lights and begins to blink. The display shows the following message.

Press the **Next** button to delete the Setup or any other button to cancel. Note that the **Keypad** button is still active, press the button again to disable it.

Chapter 8
Edit Setup Mode

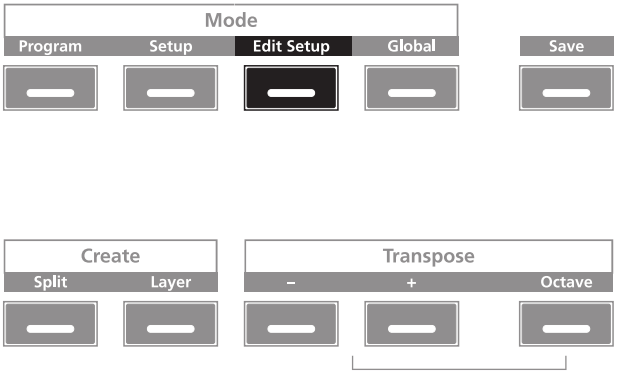
This chapter will help you familiarize yourself with the features of Edit Setup Mode.

About Edit Setup Mode

NOTE: Before you read this chapter, be sure to read *Setup Mode on page 7-1* for a full description of Setups.

Edit Setup Mode allows you to edit and create Setups—it gives you access to a Setup's common parameters and Zone-specific parameters. In this Mode, you can customize the Program, controller assignments, and MIDI transmit channel (in addition to many other parameters) of the Zones in a Setup. Any Setup edited or created in Edit Setup Mode is saved to one of the 64 User locations.

To enter Edit Setup Mode from another Mode, press the **Edit Setup** button. While you are in Edit Setup Mode, the **Edit Setup** button's LED is lit.



The Parameters List

A Setup has 89 Zone-specific parameters for each of the four Zones, and three common parameters—altogether, there are multiple parameters whose configurations determine the behavior of the Setup. As you scroll through the list of parameters using the **Chan / Param Up (^)** button, the parameters appear in the following order (the parameters of course appear in the reverse order if you scroll through the list with **Chan / Param Down (v)** button):

List No.	Parameter	Range of Values	Default Value
1	Local Program	Program List	1 Pro Piano
2	Channel	1 to 16	1
3	Destination	Local, MIDI, Local+MIDI	Local+MIDI
4	MIDI Bank	0 to 127	Bank of Local Program
5	MIDI Program	0 to 127	Program Number of Local Program
6	Bank Mode	None, Ctl0, Ctl32, Ctl0/32, K2600	Ctl0/32
7	Zone Status	Active, Muted	Active
8	Entry Program Change	Off, On	On
9	Aux Send Level	Prog, 0 to 127	10
10	Transpose	-128 to 127 ST	0
11	Entry Pan	None, 0 to 127	64
12	Entry Volume	None, 0 to 127	127
13	Low Velocity	1 to 127	1
14	High Velocity	0 to 127	127
15	Low Key	C-1 to G9	C-1
16	High Key	C-1 to G9	G9
17	Bend Range Down	Prog, 0 to 127 ST	12 ST
18	Bend Range Up	Prog, 0 to 127 ST	2 ST
19	Pressure Destination	Setup Destination Controller List	(none)
20	Pressure Curve	Linear, Compress, Expand	Linear
21	Mod Wheel Destination	Setup Destination Controller List	(none)
22	Mod Wheel Entry Value	0 to 127	(none)
23	Mod Wheel Exit Value	0 to 127	(none)
24	Slider 1 Destination	Setup Destination Controller List	(none)
25	Slider 1 Entry Value	0 to 127	(none)
26	Slider 1 Exit Value	0 to 127	(none)
27	Slider 2 Destination	Setup Destination Controller List	(none)
28	Slider 2 Entry Value	0 to 127	(none)
29	Slider 2 Exit Value	0 to 127	(none)
30	Slider 3 Destination	Setup Destination Controller List	(none)
31	Slider 3 Entry Value	0 to 127	(none)
32	Slider 3 Exit Value	0 to 127	(none)
33	Slider 4 Destination	Setup Destination Controller List	(none)
34	Slider 4 Entry Value	0 to 127	(none)
35	Slider 4 Exit Value	0 to 127	(none)
36	Slider 5 Destination	Setup Destination Controller List	(none)
37	Slider 5 Entry Value	0 to 127	(none)
38	Slider 5 Exit Value	0 to 127	(none)
39	Slider 6 Destination	Setup Destination Controller List	(none)
40	Slider 6 Entry Value	0 to 127	(none)
41	Slider 6 Exit Value	0 to 127	(none)
42	Slider 7 Destination	Setup Destination Controller List	(none)
43	Slider 7 Entry Value	0 to 127	(none)
44	Slider 7 Exit Value	0 to 127	(none)
45	Slider 8 Destination	Setup Destination Controller List	(none)

List No.	Parameter	Range of Values	Default Value
46	Slider 8 Entry Value	0 to 127	(none)
47	Slider 8 Exit Value	0 to 127	(none)
48	Slider 9 Destination	Setup Destination Controller List	(none)
49	Slider 9 Entry Value	0 to 127	(none)
50	Slider 9 Exit Value	0 to 127	(none)
51	Slider 10 Destination	Setup Destination Controller List	(none)
52	Slider 10 Entry Value	0 to 127	(none)
53	Slider 10 Exit Value	0 to 127	(none)
54	Slider 11 Destination	Setup Destination Controller List	(none)
55	Slider 11 Entry Value	0 to 127	(none)
56	Slider 11 Exit Value	0 to 127	(none)
57	Slider 12 Destination	Setup Destination Controller List	(none)
58	Slider 12 Entry Value	0 to 127	(none)
59	Slider 12 Exit Value	0 to 127	(none)
60	Slider 13 Destination	Setup Destination Controller List	(none)
61	Slider 13 Entry Value	0 to 127	(none)
62	Slider 13 Exit Value	0 to 127	(none)
63	Slider 14 Destination	Setup Destination Controller List	(none)
64	Slider 14 Entry Value	0 to 127	(none)
65	Slider 14 Exit Value	0 to 127	(none)
66	Slider 15 Destination	Setup Destination Controller List	(none)
67	Slider 15 Entry Value	0 to 127	(none)
68	Slider 15 Exit Value	0 to 127	(none)
69	CC Pedal Destination	Setup Destination Controller List	(none)
70	CC Pedal Entry Value	0 to 127	(none)
71	CC Pedal Exit Value	0 to 127	(none)
72	Foot Switch Mode	Momentary, Toggled	Toggled
73	Foot Switch Destination	Setup Destination Controller List	(none)
74	Foot Switch On Value	0 to 127	127
75	Foot Switch Off Value	0 to 127	0
76	Foot Switch Entry	None, On, Off	None
77	Foot Switch Exit	None, On, Off	None
78	Foot Switch 2 Mode	Momentary, Toggled	Toggled
79	Foot Switch 2 Destination	Setup Destination Controller List	(none)
80	Foot Switch 2 On Value	0 to 127	127
81	Foot Switch 2 Off Value	0 to 127	0
82	Foot Switch 2 Entry	None, On, Off	None
83	Foot Switch 2 Exit	None, On, Off	None
84	Switch	Momentary, Toggled	Toggled
85	Switch Destination	Setup Destination Controller List	(none)
86	Switch On Value	None, 0 to 127	127
87	Switch Off Value	None, 0 to 127	0
88	Switch Entry	None, On, Off	None
89	Switch Exit	None, On, Off	None

List No.	Common Parameter	Range of Values	Default Value
	Aux Effect Override	Prog, 0 to 1087	Prog
	Aux Effect Channel	(Channels used in Setup)	(Channel of Zone 1)
	KB3 Channel	1 to 16	(Channel of Zone 1)

Selecting Parameters

The Display

In Edit Setup Mode, the top line of the display shows the current Mode, Zone number and the current parameter number as well as the total the number of available parameters. The bottom line of the display shows the current parameter and value.

Pop Up Messages

Some actions cause the display to show pop up messages. After a time the display returns to show the current Setup.

Chan / Param Buttons

Use the **Chan / Param** buttons to scroll through the parameter list.

Alpha Wheel & Previous (–) and Next (+) Value Buttons

Use the Alpha Wheel or the Value buttons, below the display, to change the parameter value—turning the Alpha Wheel counter-clockwise or pressing the **Previous** button will select the previous value and turning the Alpha Wheel clockwise or pressing the **Next** button will select the next value.

Alphanumeric Entry

You can use the **Keypad** button to directly enter a Setup ID number. Press the **Keypad** button and enter the ID number using the alphanumeric data entry buttons, then press the **Enter** button to confirm it. The **Keypad** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

Value Jump Buttons

Pressing the **Next** and **Previous** buttons simultaneously resets the parameter to its default value.

Param Jump Buttons

Pressing the **Chan / Param Up (⌃)** and **Chan / Param Down (⌄)** buttons simultaneously jumps parameters to specific jump points. The jump points are: Local Program, Transpose, Low Key, ModWheel Destination, Slider1 Destination, Slider6 Destination, Slider11 Destination, Foot Switch Destination, Aux Effect Override (Common).

Intuitive Entry (Easy Selection)

In Edit Setup Mode, pressing the **Select** button with a button or controller performs easy selection in the following cases:

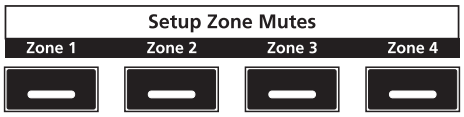
Select + Zone (1–4) Button

Pressing the **Select** button with one of the four **Zone** buttons selects that Zone but leaves the current parameter being edited on the display. If the parameter is a Setup common parameter and not a Zone parameter, it will not do anything.

Select + controller

Pressing the **Select** button with a controller (a slider, **Sw** button, Mod Wheel or any pedal) jumps to the first parameter of the selected controller in the current Zone. If you are entering a number (alphanumeric entry) and press **Enter**, this action will apply the chosen number.

Setup Zone Buttons



To edit the currently selected parameter, simply use the **Next** and **Previous** Value buttons below the display. Pressing both Value buttons simultaneously will jump to a different value depending on the parameter—the jump value is mentioned in each of the parameter descriptions below. Additionally, you can use the secondary numeric functions of the Category buttons.

The Zone-specific Parameters

Each of the four Zones in Setup has multiple parameters that determine its behavior. Since the Zones of a Setup are independent of each other, changing a parameter for a certain Zone will not affect the parameters of any other Zone.

Local Program

The Local Program parameter determines the Program to be loaded for the currently selected Zone. You can set this parameter to any SP5 Program (**0 – 1023**). The display shows the Program number but the name is truncated. Pressing both Value buttons simultaneously will set this parameter to 1 (1 Pro Piano).

Editing this parameter also changes the MIDI Bank and MIDI Program parameters, described below.

Channel

The Channel parameter determines the MIDI transmit channel for the currently selected Zone. You can set this parameter to any of the 16 MIDI channels (**1**-**16**). Pressing both Value buttons simultaneously will set this parameter to **1**. You can assign different Zones to the same channel, but only one Program can be loaded in a channel at a particular time.

Destination

The Destination parameter determines whether MIDI data generated by the currently selected Zone is sent to the SP5 sound engine, through the MIDI OUT port, or both. You can set this parameter to any of the three destinations for this parameter:

NOTE: In the table below, MIDI OUT applies to both the 5-pin MIDI OUT and the USB ports.

Local	MIDI data is sent only to the SP5 sound engine. MIDI OUT is disabled.
MIDI	MIDI data is sent only through MIDI OUT. The sounds of the SP5 are disabled.
Local+MIDI	MIDI data is sent both to the SP5 sound engine and through the MIDI OUT.

Select the desired destination depending on your needs. If you want to play the SP5, but not send any MIDI information to other MIDI instruments, then select Local. If you want to use the SP5 strictly as a MIDI controller for the other modules in your MIDI chain, then select MIDI. If you want to make use of the SP5's sounds as well as use it as a MIDI controller, then select **Local+MIDI**.

Pressing both Value buttons simultaneously will set this parameter to **Local+MIDI**.

MIDI Bank

The MIDI Bank parameter determines the MIDI Bank change message that the currently selected Zone sends when the Setup is loaded. You can set this parameter to a MIDI Bank change message from **0** to **127**.

When using the SP5 as a MIDI controller, sending a MIDI Bank change message (along with a MIDI Program change message) when a Setup is loaded ensures that the Program loaded on the other sound modules in your MIDI chain is the Program that you want. For example, if you've configured a Setup to work in a specific way with Program **32** in Bank **5** of a connected sound module, then set MIDI Bank to **5** and MIDI Program to **32**. This way, whenever you load this Setup, the sound module will automatically load Program **32** in Bank **5**.

Pressing both Value buttons simultaneously will set this parameter to the Bank number of the currently selected Local Program.

NOTE: When you change the Local Program parameter, the MIDI Bank and MIDI Program parameters will automatically change to match the Bank and Program numbers of the Program that you select for Local Program. For example, if you choose Program **178**, then MIDI Bank will change to **1** and MIDI Program will change to **50**.

Differing Program Numbers

If the Programs on your connected sound module are organized by MIDI Bank with each Program number being between **0** and **127**, then use the following formula to determine what number to enter for the MIDI Program Change Function:

[*MIDI Bank number*] * 128 + [*program number*]

So for example, if you want to send a MIDI Program Change message for **Program 83** in **MIDI Bank 4**, you would enter the number **595**—this number is equal to 4 * 128 + 83.

If the Programs on your connected sound module are organized by MIDI Bank with each Program number being between **1** and **128**, then use the following formula to determine what number to enter in MIDI Program Change Mode:

[*MIDI Bank number*] * 128 + [*Program number*] -1

So for example, if you want to send a MIDI Program Change message for **Program 83** in **MIDI Bank 4**, you would enter the number **594**—this number is equal to 4 * 128 + (83 - 1).

MIDI Program

The MIDI Program parameter determines the MIDI Program change message that the currently selected Zone sends when the Setup is loaded. You can set this parameter to a MIDI Program change message from **0** to **127**.

When using the SP5 as a MIDI controller, sending a MIDI Program change message (along with a MIDI bank change message) when a Setup is loaded ensures that the Program loaded on the other sound modules in your MIDI chain is the Program that you want. For example, if you've configured a Setup to work in a specific way with Program **32** in Bank **5** of a connected sound module, then set MIDI Bank to **5** and MIDI Program to **32**. This way, whenever you load this Setup, the sound module will automatically load Program **32** in Bank 5.

Pressing both Value buttons simultaneously will set this parameter to the Program number of the currently selected Local Program.

NOTE: When you change the Local Program parameter, the MIDI Bank and MIDI Program parameters will automatically change to match the Bank and Program numbers of the Program that you select for Local Program. For example, if you choose Program **178**, then MIDI Bank will change to **1** and MIDI Program will change to **50**.

Differing Program Numbers

Follow the formula on *page 8-8*.

Bank Mode

The Bank Mode parameter determines the controller number with which MIDI Bank change messages are transmitted. For MIDI Bank change messages, various manufacturers have chosen different MIDI controller numbers. Most have chosen 0, 32, or both. In the case of the Kurzweil K2600, it has its own unique controller number that it responds to. Pressing both Value buttons simultaneously will set this parameter to **Ctl0/32**.

You can set this parameter to any of the five controller IDs:

None	MIDI Bank change messages are disabled.
Ctl0	MIDI Bank change messages are sent with controller number 0.
Ctl32	MIDI Bank change messages are sent with controller number 32.
Ctl0/32	MIDI Bank change messages are sent with both controller numbers 0 and 32.
K2600	MIDI Bank change messages are sent with controller number 32. (K2600 Program numbers 0-99.)

Zone Status

The Zone Status parameter determines whether the currently selected Zone is active or muted. You can set this parameter to either of two states: **Active** or **Muted**. Pressing both Value buttons simultaneously will set this parameter to **Active**.

Entry Program Change

The Entry Program Change parameter determines whether or not the currently selected Zone can send a MIDI Program change message when the Setup is loaded. You can set this parameter to either **Off** or **On**. When set to **On**, the Zone will send a MIDI Program change message with the Program specified for the MIDI Program parameter (described above). Pressing both Value buttons simultaneously will set this parameter to **On**.

Aux Send Level

The Aux Send Level parameter determines the send level for the auxiliary effects of the currently selected Zone. You can select any level from **Prog**, **0** to **127**. Pressing both Value buttons simultaneously will set this parameter to **10**.

For a description of the auxiliary effects of a Setup, see *About Auxiliary Effects on page 8-16* and *Common Parameters on page 8-16*.

Transpose

The Transpose parameter determines the transposition for the currently selected Zone. You can set this to any value from **-128** semitones to **127** semitones. Pressing both Value buttons simultaneously will set this parameter to **0**.

Entry Pan

The Entry Pan parameter determines the Pan MIDI message that the currently selected Zone sends when the Setup is loaded. You can set this parameter to any pan setting from **None**, **0** (full left pan) to **127** (full right pan). To pan to center, select **64** for this parameter. Pressing both Value buttons simultaneously will set this parameter to **64**. None is -1.

Entry Volume

The Entry Volume parameter determines the Volume MIDI message that the currently selected Zone sends when the Setup is loaded. You can set this parameter to any volume setting from **None**, **0** to **127**. Pressing both Value buttons simultaneously will set this parameter to **127**. None is -1.

Low Velocity

The Low Velocity parameter determines the lowest velocity that a keystroke must have in order to trigger a note in the currently selected Zone. You can set this parameter to any velocity between **1** and **127**. Pressing both Value buttons simultaneously will set this parameter to **1**.

If, for example, you set Low Velocity to **20**, then only keystrokes with velocities of **20** or above will trigger a note. Keystrokes with velocities lower than **20** will not trigger a note.

High Velocity

The High Velocity parameter determines the highest velocity that a keystroke must have in order to trigger a note in the currently selected Zone. You can set this parameter to any velocity between **0** and **127**. Pressing both Value buttons simultaneously will set this parameter to **127**.

If, for example, you set High Velocity to **80**, then only keystrokes with velocities of **80** or below will trigger a note. Keystrokes with velocities higher than **80** will not trigger a note.

Low Key

The Low Key parameter determines the lower boundary of the currently selected Zone. You can set this parameter to any note from **C-1** to **G9**. Pressing both Value buttons simultaneously will set this parameter to **C-1**.

If, for example, you set Low Key to **C4**, then only keys at or above **C4** will trigger a note for the currently selected Zone. Keys below **C4** will not trigger a note.

High Key

The High Key parameter determines the higher boundary of the currently selected Zone. You can set this parameter to any note from **C-1** to **G9**. Pressing both Value buttons simultaneously will set this parameter to **G9**.

If, for example, you set High Key to **C4**, then only keys at or below **C4** will trigger a note for the currently selected Zone. Keys above **C4** will not trigger a note.

Bend Range Down

The Bend Range Down parameter determines the lower bend of the Pitch Wheel. You can set this parameter to any value between **0** semitones and **127** semitones, or to **Prog**, which uses the Bend Range of the currently selected Program for the Zone. Pressing both Value buttons simultaneously will set this parameter to **12** semitones.

Bend Range Up

The Bend Range Up parameter determines the upper bend of the Pitch Wheel. You can set this parameter to any value between **0** semitones and **127** semitones, or to **Prog**, which uses the Bend Range of the currently selected Program for the Zone. Pressing both Value buttons simultaneously will set this parameter to **2** semitones. **Prog** is -1.

Continuous Controller Parameters

- Pressure
- Mod Wheel
- Sliders 1 through 15
- CC Pedal

Destination

The Destination parameter determines the Controller Destination for the currently selected controller in the currently selected Zone. You can select from the following destinations:

Controller Number	Controller Destination	Description
0	OFF/Bank	By default, when you enter 0 or Clear for the Destination parameter, the destination will be assigned to OFF. To select Bank as the destination, use the Value buttons.
1	MWheel	Default destination for Mod Wheel
2	Breath	Default assignment for breath controller in compatible synths
3	MIDI 03	MIDI Controller 3
4	Foot	Default assignment for continuous foot controller in compatible synths
5	PortTim	Monophonic SP5 Programs respond to this Controller if portamento is turned on.
6	Data	Almost all SP5 Programs have this Controller assigned to filter frequency or brightness.
7	Volume	MIDI Volume
8	Balance	MIDI Balance
9	MIDI 09	MIDI Controller 9
10	Pan	MIDI Pan
11	Express	Default assignment for CC Pedal. In most Programs it acts as a volume control. It scales between 0 and the current value of Volume.
12	MIDI 12	MIDI Controller 12
13	MIDI 13	
14	MIDI 14	Default destination for Slider 1
15	MIDI 15	Default destination for Slider 2
16	MIDI 16	Default destination for Slider 3
17	MIDI 17	Default destination for Slider 4
18	MIDI 18	Default destination for Slider 5
19	MIDI 19	Default destination for Slider 6
20	MIDI 20	Default destination for Slider 7
21	MIDI 21	Default destination for Slider 8
22	MIDI 22	Default destination for Slider 9
23	MIDI 23	Default destination for Slider 10
24	MIDI 24	Default destination for Slider 11
25	MIDI 25	Default destination for Slider 12
26	MIDI 26	Default destination for Slider 13
27	MIDI 27	Default destination for Slider 14
28	MIDI 28	Default destination for Slider 15

Controller Number	Controller Destination	Description
29–31	MIDI 29–31	MIDI Controllers 29–31
32	MIDI Bank	MIDI Bank change message
33–63	MIDI 33–63	MIDI Controllers 33–63
64	Sustain	Default destination for Sustain Pedal
65	MIDI 65	
66	Sostenut	Default destination for Sostenuto Pedal (Sustains notes that are currently down, but not notes played subsequently.)
67	Soft	Lowers the volume by a preset amount and may soften the timbre as well.
68	Legato	Forces mono playback.
69	Freeze	Envelopes freeze at current state.
70–79	MIDI 70–79	MIDI Controllers 70–79
80	MIDI 80	Default destination for **Sw** button
81–83	MIDI 81–83	MIDI Controllers 81–83
84	Portamen	Standard MIDI controller for setting Portamento starting note
85–90	MIDI 85–90	MIDI Controllers 85–90
92	MIDI 92	MIDI Controller 92
94–95	MIDI 94–95	MIDI Controllers 94–95
96	Data Inc	Equivalent to pressing the **Next** Value button
97	Data Dec	Equivalent to pressing the **Previous** Value button
98	NRegParL	Non–Registered Parameter Least Significant Byte
99	NRegParM	Non–Registered Parameter Most Significant Byte
100	RegParL	Registered Parameter Least Significant Byte
101	RegParM	Registered Parameter Most Significant Byte
102–119	MIDI 102–119	MIDI Controllers 102–119
120	Sound Off	Stops all sound in the corresponding channel.
121	RstCtls	Resets Controllers to defaults in the corresponding channel.
122	Local	
123	Notes Off	Sends Note Off Message to all playing notes in the corresponding channel.
124	Poly	
125	Omni	
126	Mono On	
127	Mono Off	
128	Pitch	Values above 64 and below 64 bend the pitch up and down, respectively.
129	PitchRev	Values above 64 and below 64 bend the pitch down and up, respectively
130	PitchUp	Values above 0 bend the pitch up
131	PitchDwn	Values above 0 bend the pitch down
132	Pressure	Default Destination for Pressure
133	Tempo	Tempo
134	KeyNum	Triggers playback of notes by Key Number—e.g., C4 is 60. Send a velocity first with Destination135, KeyVel.
135	KeyVel	Key Velocity
136	ProgInc	Program Increment—increments current Program number.
137	ProgDec	Program Decrement—decrements current Program number.
138	ProgGoto	Go to Program—selects Program.

Controller Number	Controller Destination	Description
139	SetupInc	Setup Increment—increments current Setup number.
140	SetupDec	Setup Decrement—increments current Setup number.
141	SetpGoto	Go to Setup—selects Setup.
145	TransUp	Transpose Up (ST)
146	TransDown	Transpose Down (ST)

Entry Value

The Entry Value parameter determines the value of the continuous controller that is sent as a MIDI message when the current Setup is loaded. You can set this parameter to any number between **0** and **127**, or to **None**. Pressing both Value buttons simultaneously will set this parameter to **None**. None is -1.

If Entry Value is set to **None**, when you load the current Setup, the controller will be at whatever value corresponds to its current position. If you specify an Entry Value, then a MIDI controller message with this value will be sent when you load the current Setup.

Exit Value

The Exit Value parameter determines the value of the continuous controller that is sent as a MIDI message when the current Setup is exited. You can set this parameter to any number between **0** and **127**, or to **None**. Pressing both Value buttons simultaneously will set this parameter to **None**. None is -1.

If Exit Value is set to **None**, then when you leave the current Setup, the controller will be at whatever value corresponds to its current position. If you specify an Exit Value, then a MIDI controller message with this value will be sent when you close the current Setup.

The Foot Switch & Sw Button Parameters

- FtSw
- FtSw2
- Sw Button

The following are parameters that affect the behavior of the Foot Switch and **Sw** button controller:

Mode

The Mode parameter determines the switching action of the Foot Switch. You can set this parameter either of three settings:

Momentary A momentary switch is one that is only in the "on" state when it is pressed. As soon as you release the switch, it goes into the "off" state.

Toggled A toggled switch is one that maintains its state after it is pressed. So, if the switch is currently in the "off" state, pressing it once will put it in the "on" state. Pressing it again will put it back in the "off" state.

Pressing both Value buttons simultaneously will set this parameter to **Toggled**.

Destination

The Destination parameter determines the Controller Destination for the currently selected controller in the currently selected Zone. For a list of the Setup Destination Controllers and their descriptions, see *Destination on page 8-12*.

On Value

The On Value is the MIDI value sent when the switch is set to On. You can set this parameter to any number between **0** and **127**, or to **None**. Pressing both Value buttons simultaneously will set this parameter to **127**.

Off Value

The Off Value is the MIDI value sent when the switch is set to Off. You can set this parameter to any number between **0** and **127**, or to **None**. Pressing both Value buttons simultaneously will set this parameter to **0**.

Entry State

The Entry State parameter determines the state of the Foot Switch that is sent as a MIDI message when the current Setup is loaded. You can set this parameter to **None**, **On**, or **Off**. Pressing both Value buttons simultaneously will set this parameter to **None**. None is -1.

If Entry State is set to **None**, then when you load the current Setup, the Foot Switch will be at whatever value corresponds to its current position. If you specify an Entry State, then a MIDI controller message with this value will be sent when you load the current Setup.

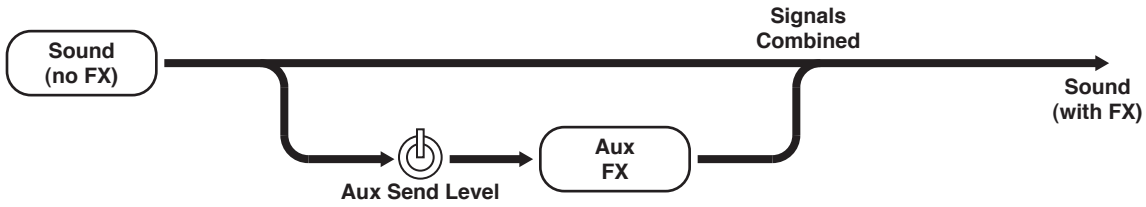
Exit State

The Exit State parameter determines the state of the Foot Switch that is sent as a MIDI message when the current Setup is exited. You can set this parameter to **None**, **On**, or **Off**. Pressing both Value buttons simultaneously will set this parameter to **None**. None is -1.

If Exit State is set to **None**, then when you close the current Setup, the Foot Switch will be at whatever value corresponds to its current position. If you specify an Exit State, then a MIDI controller message with this value will be sent when you close the current Setup.

About Auxiliary Effects

Programs and Setups both have an auxiliary effect. An auxiliary effect is an effect that is not in the direct path of the sound, but rather, it "receives" the sound, and then outputs effect-altered sound, which is mixed back with the original sound. The following diagram illustrates the signal path of a sound through the auxiliary effect:



Common Parameters

In addition to the Zone-specific parameters described above, a Setup has three parameters common to all of its Zones. These parameters determine the auxiliary effect of the Setup.

Aux Effect Override

The Aux Effect Override parameter determines whether or not the auxiliary effect of the Setup is overridden with another effect. You can set this parameter to either Prog or to any Chain Effect number between 0 and 1087.

Setting this parameter to Prog results in the auxiliary effect of one of the Programs of the Setup being used—you specify which Program with the other common parameter Aux Effect Channel, which is described below. Setting Aux Effect Override to any of the Effect Chains allows you to select an auxiliary effect not present in any of the Programs being used in the Setup. Either way, the same auxiliary effect is used for all of the Zones of the Setup.

Aux Effect Channel

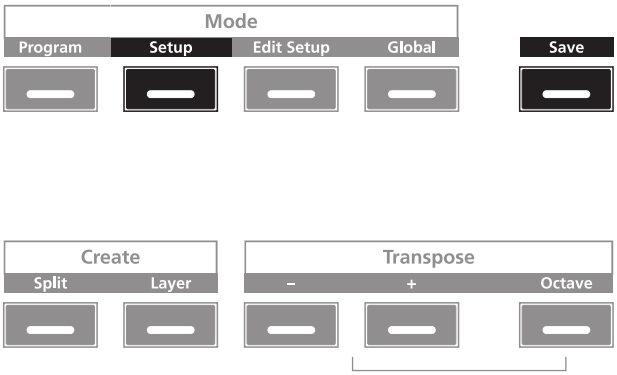
With Prog selected for the Aux Effect Override parameter, the Aux Effect Channel parameter allows you to choose which Zone's auxiliary effect is used for the entire Setup. You can set this parameter to any of the MIDI channels of the Zones currently in use within the Setup.

Selecting the channel of one of the active Zones within the Setup will load the auxiliary effect of that Zone's Program as the auxiliary effect of the Setup. Note that changing this parameter only results in a change in sound if Prog is selected for Aux Effect Override. If an Effect Chain is specified for Aux Effect Override, then that effect—not the effect on the channel specified for Aux Effect Channel—will be in use.

KB3 Channel

In the event there are more than one KB3 Programs specified in a Setup, this parameter specifies which MIDI Channel has priority to load a KB3 Program. You can set this parameter to a value between 1 and 16. Pressing both Value buttons simultaneously will set this parameter to the channel in Zone 1.

Saving User Setups



To save the changes to the current Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights. Pressing the **Save** button opens standard the Save Dialog. The display shows the following:

```
Save Setup over: 1/2
1024 New Setup
```

The bottom line of the display shows the first available ID number and the current Setup name. You can save Setups with ID numbers from 1024 to 1087. When you initially press the **Save** button, the SP5 always selects the next available ID number and displays the current Setup name.

In the Save Dialog, there are two parameters available which allow you to specify the ID number and rename the Setup. Use the first parameter to change the ID number and the second to rename the Setup. While the **Save** button's LED is blinking, press one of the **Chan / Param** buttons to switch between the two parameters.

Changing ID Numbers

To change the ID number, turn the Alpha Wheel or use the Value buttons to select the number. You can also use the secondary alphanumeric functions of the Category buttons to change the ID number, simply type in the new ID number, then press the **Enter** button. Note that if you select a number out of range (greater than 1087) and press the **Enter** button, the ID number won't change.

Naming a User Setup

To rename the Setup, first press one of the **Chan / Param** buttons to change the parameter. You should see the following in the display:

The bottom line of the display shows the current Setup name. Note that by default the first character is selected and the cursor is under it. New Setup names can total 16 characters in length. (Note that Setup names that are 16 characters in length cause the ID number and Setup name to scroll marquee-style in the display.) Use the secondary alphanumeric functions of the Category buttons to enter the new Setup name.

Press the **Previous** or **Next** button to move the cursor. Press the **+/-** button to switch between upper and lower case characters (all characters will be upper case until you press the **+/-** button again). Use the **Space** button to change the current character to a space, the **Insert** button to insert a blank space (all the characters to the right will move one space to the right), and the **Delete** button to delete the current character (all the characters to the right will move one space to the left).

Saving a User Setup

When you finish changing the ID number and naming the Setup, the **Save** button LED should still be blinking. Press the **Save** button to complete the process. Saved User Setups have an asterisk between the ID number and Setup name.

If you press a Mode button to switch Modes before you save the Setup, the display will show a `Save Setup?` message. Press the **Next** button to save the current Setup. When the Setup is saved, the SP5 will switch to the Mode you selected. If you press the **Previous** button, it will cancel the save and the SP5 will switch to the Mode you selected. Press any Mode button again and the SP5 will switch to that Mode.

Deleting User Setups

To delete a User Setup, select the Setup and press the **Keypad** category button. After you press the **Keypad** button, press the **Delete** button. The **Delete** button's LED lights and begins to blink. The display shows the following message.

Press the **Next** button to delete the Program or any other button to cancel. Note that the **Keypad** button is still active, press the button again to disable it.

Chapter 9
Global Mode

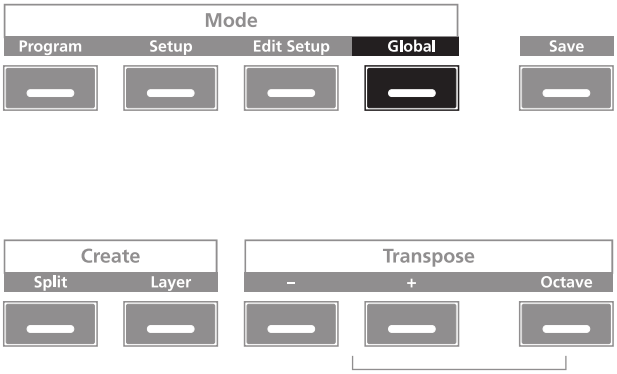
This chapter will help you familiarize yourself with the features of Global Mode.

Global Mode gives you access to the global parameters of the SP5—that is, it allows you to edit the master settings of the unit. It also allows you to restore factory defaults on the unit by performing a Hard Reset.

CAUTION: PERFORMING A HARD RESET WILL DELETE ALL USER PROGRAMS, USER SETUPS, AND GLOBAL SETTINGS.

To enter Global Mode from another Mode, press the **Global** Mode button. While you are in Global Mode, the **Global** button's indicator LED is lit. In the Category section, the **Keypad** button's indicator LED is also lit. This allows for alphanumeric entry.

When you enter Global Mode, the last selected parameter since power-up (or the Tuning parameter if you're entering Global Mode for the first time since power-up) will be the currently selected parameter.

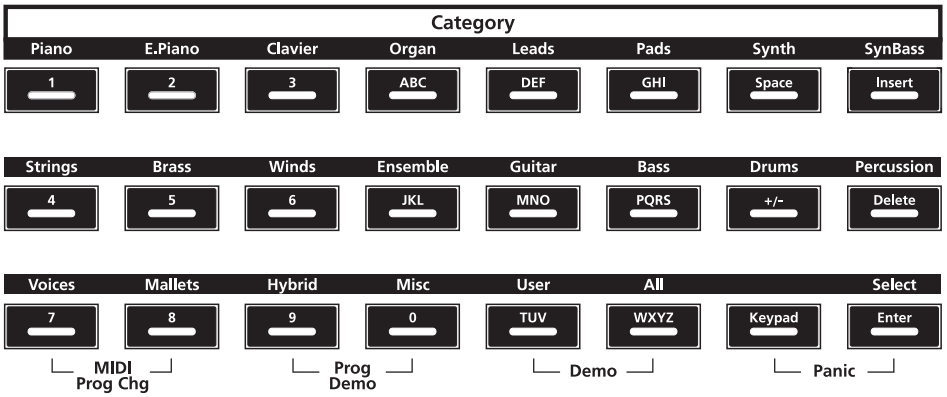


Selecting and Editing Parameters

To scroll through the parameters (and dialogs) of Global Mode, use the **Chan / Param** buttons.

Parameter or Dialog	Range of Values	Default Value
Tuning	-100 to 100 Cents	0 Cents
Velocity Map	Linear, Light 1, Light 2, Light 3, Hard 1, Hard 2, Hard 3, Piano Touch, Easy Touch, GM Receive	Linear
Pressure Map	Linear, Easy, Easier, Easiest, Hard, Harder, Hardest	Linear
FX Select (FXSel)	Performance, Multitrack	Performance
Channel Enable (Chan1–16)	Enable, Disable	Enable
Destination (Dest)	Local, MIDI, Local+MIDI	Local+MIDI
Bank Select (BankSel)	0, 32, 0/32	0/32
Program Change (ProgChg)	On, Off	On
Local Keyboard Channel (LclKbdChan)	None, 1 to 16	None
SysEx ID	0 to 127	0
Hard Reset?	(See corresponding sections below)	
Save All?		
Load All?		

To edit the currently selected parameter, use the Alpha Wheel or the **Next** and **Previous** buttons below the display. Pressing both Value buttons simultaneously will jump to a different value depending on the parameter—the jump value is mentioned in each of the parameter descriptions below. Additionally, you can use the secondary alphanumeric functions of the Category buttons: Note that on each button the secondary function is printed in white ink.



The Global Parameters

The following are the global parameters of the SP5. The settings of these parameters are in effect regardless of what Program or Setup you have currently selected.

Tuning

The Tuning parameter allows you to fine-tune the unit in cents—one cent is one hundredth of a semitone (**100** cents comprise a semitone). You can select any tuning from **-100** cents to **100** cents. By default this parameter is set to **0**. Pressing both Value buttons simultaneously will set this parameter to **0**.

Velocity Map

The Velocity Map parameter determines the way the SP5 generates MIDI velocity information. Different maps generate different MIDI velocity values for the same physical key strike velocity (note that this setting is applied to notes on top of any velocity settings made per Setup, per Zone). The default map (**Linear**) provides the widest range of velocity expression, but you may want to choose a different map if the default does not suit your playing style. You can select from any of the following settings:

Linear	The MIDI output velocity is directly proportional to the strike velocity. The highest possible MIDI velocity will be output from the fastest velocity that the physical keys can detect, and the lowest possible MIDI velocity will be output from the slowest velocity that the physical keys can detect. All other MIDI and strike velocities are evenly spaced between these two extremes in the **Linear** map, allowing for an even distribution of strike and MIDI velocities.
Light 1 **Light 2** **Light 3**	The MIDI output velocity is higher than the **Linear** Velocity Map. From **Light 1** to **Light 3**, it is easier to produce high MIDI velocity values for the same key strike velocity (with **Light 3** being the easiest). These maps are best suited for ensemble playing.
Hard 1 **Hard 2** **Hard 3**	The MIDI output velocity is lower than the **Linear** Velocity Map. From **Hard 1** to **Hard 3**, it is harder to produce high MIDI velocity values for the same key strike velocity (with **Hard 3** being the hardest).
Piano Touch	The MIDI output velocity is similar to the strike velocity response of an acoustic piano, and is best suited for playing acoustic piano programs.

Easy Touch This Velocity Map is similar to the **Light** Maps and make high MIDI velocities easier to produce. But, it allows more sensitive control over producing high MIDI velocities by not boosting the MIDI velocity for fast strike velocities as much as it does for medium strike velocities.

GM Receive This Velocity Map mimics the Velocity Map commonly used by keyboards that use the General MIDI (GM) sound set. The **GM Receive** Map makes medium strike velocities produce higher MIDI velocities compared to the **Linear** map. **GM Receive** affects notes from the SP5's keyboard as well as those from the MIDI in port.

Pressing both Value buttons simultaneously will set this parameter to **Linear**.

Pressure Map (PressMap)

The Pressure Map parameter determines the way the SP5 controls Pressure (After Touch). Different maps generate different MIDI pressure values for the same physical key depending on how hard you press and hold the key. You can select from any of the following settings:

Linear

Easy, Easier, Easiest

Hard, Harder, Hardest

Pressing both Value buttons simultaneously will set this parameter to **Linear**.

FX Select (FXSel)

The FX Select (FXSel) parameter determines how the SP5 responds to interrupts with regards to effects. You can set this parameter to either **Performance** or **Multitrack**. Pressing both Value buttons simultaneously will set this parameter to **Performance**.

With FX Select set to **Performance**, the SP5 minimizes disruption of existing effects when changing Programs, and entry values will not disrupt sustained notes when changing Programs in Program Mode. When controlling the SP5 from an external sequencer in Program Mode, setting FX Select to **Multitrack** will minimize effect disruption.

Channel Enable (ChanEn)

For each of the 16 MIDI channels, you can set the Channel Enable (ChanEn) parameter to either **Enable** or **Disable**. For each channel, setting this parameter to Enable enables the channel to transmit and receive MIDI messages and setting it to **Disable** disables such functions. Pressing both Value buttons simultaneously will set this parameter to **Enable**.

Destination (Dest)

The Destination parameter determines the destination of MIDI data generated by striking keys or activating controllers. This data can be sent to the SP5 sound engine, through the MIDI out ports, or both. You can set this parameter to any of the three destinations for this parameter:

NOTE: In the table below, MIDI OUT applies to both the five pin MIDI OUT and the USB ports.

Local	MIDI data is sent only to the SP5 sound engine. MIDI OUT is disabled.
MIDI	MIDI data is sent only through MIDI OUT. The sounds of the SP5 are disabled.
Local+MIDI	MIDI data is sent both to the SP5 sound engine and through the MIDI OUT.

Select the desired destination depending on your needs. If you want to play the SP5, but not send any MIDI information to other MIDI instruments, then select Local. If you want to use the SP5 strictly as a MIDI controller for the other modules in your MIDI chain, then select MIDI. If you want to make use of the SP5's sounds as well as use it as a MIDI controller, then select Local+MIDI. Pressing both Value buttons simultaneously will set this parameter to **Local+MIDI**.

Bank Select (BankSel)

The Bank Mode parameter determines the controller number with which MIDI Bank change messages are transmitted. For MIDI Bank change messages, various manufacturers have chosen different MIDI controller numbers. Most have chosen 0, 32, or both. You can set this parameter to any of the following three controller IDs: Pressing both Value buttons simultaneously will set this parameter to **0/32**.

0	MIDI Bank change messages are sent with controller number 0.
32	MIDI Bank change messages are sent with controller number 32.
0/32	MIDI Bank change messages are sent with both controller numbers 0 and 32.

Program Change (ProgChg)

The Program Change (ProgChg) parameter determines whether or not entry MIDI Program Change messages are sent for Setups. You can set this parameter to either **On** or **Off**. Pressing both Value buttons simultaneously will set this parameter to **On**.

Note that when you perform a MIDI Program Change through MIDI Program Change Mode, the setting of the Global Program Change parameter (as well as the setting of the Global Destination parameter) is ignored.

Local Keyboard Channel (LclKbdChan)

Changing the setting of the Local Keyboard Channel parameter is useful only when your SP5 is receiving MIDI information from an external source. Perhaps you have a favorite MIDI keyboard that you use to control all the gear in your studio, or you use a lot of outboard sequencing. If you're using the SP5 as a standalone music workstation or performance keyboard, you can ignore this parameter.

The local keyboard channel enables the SP5 to receive MIDI information on a single channel, then rechannelize that information so you can play and control all four Zones of a Setup, even if your MIDI source transmits on only one channel. When you're in Program Mode, the local keyboard channel remaps incoming information to the SP5's current channel. When using the local keyboard channel all the MIDI information received on the Local Keyboard Channel also gets sent—after being remapped—to the SP5's MIDI and USB Out ports.

You may find it more convenient to use the local keyboard channel. In this case, the SP5 remaps incoming MIDI to the SP5's current channel, so in Program Mode, you'll always play the Program on the SP5's current channel. Incoming MIDI also gets sent to the SP5's MIDI and USB Out port. On the other hand, in this case your MIDI source's transmitting channel must match the SP5's local keyboard channel for anything to work.

Things are a bit different for playing Setups. In this case, you must use the Local Keyboard Channel to be able to play and control all of the Setup's Zones. Set LclKbdChan to match the channel your external MIDI source is using (if for example your MIDI source transmits on Channel 1, set LclKbdChan to 1). All MIDI information that the SP5 receives on the local keyboard channel gets remapped to the channels and control destinations used by the Zones in the Setup.

The SP5 also remaps certain MIDI Controller messages that it receives on the Local Keyboard Channel, so that they correspond (in most cases) to the default assignments for the SP5's physical controllers (Mod Wheel, sliders, etc.). Physical controller assignments are handled by Setups, and are defined per Zone in Edit Setup Mode. Each Zone of a Setup has its own controller assignments.

Sysex ID

The SysEx ID parameter determines the ID number for the unit if you are using more than one device with the same MIDI manufacturer ID number. You can set this parameter to any number from **0** to **127**.

Unless you have multiple SP5s receiving Sysex messages from a single source, you will not need to change the Sysex ID from the default setting of **0**.

If you do have multiple SP5s receiving Sysex messages from a single source, make sure each SP5 has a different Sysex ID. This will allow you to direct Sysex messages to the appropriate SP5 by specifying which unit with the Sysex ID byte that's included with every Sysex message.

To have the unit respond to Sysex messages regardless of the Sysex ID, set Sysex ID to **127**.

The Hard Reset? Dialog

CAUTION: PERFORMING A HARD RESET WILL DELETE ALL USER PROGRAMS AND SETUPS AND WILL RESTORE ALL PARAMETERS TO DEFAULT VALUES. THIS ACTION CANNOT BE UNDONE.

The `Hard Reset?` dialog allows you to restore factory defaults to the SP5. Pressing the **Next** button in this dialog changes the display to `Confirm?` Pressing the **Next** button in the `Confirm?` dialog will result in a hard reset—pressing the **Previous** button in the `Confirm?` dialog will recall the `Hard Reset?` dialog.

Be sure to save your work to external storage. (See the `Save All?` Dialog below). Once deleted, the User Programs and User Setups are completely removed from the SP5 and there is no way to retrieve them.

To exit the Hard Reset dialog, simply select another parameter using the **Chan / Param** buttons, or enter another Mode using the Mode buttons.

The Save All? Dialog

NOTE: If the SP5 is currently connected to your computer as a MIDI controller, eject or Safely Remove it before continuing. Selecting the Save All? Dialog will disconnect any MIDI device connected via USB.

The `Save All?` dialog allows you to save every User Program and User Setup to a computer connected to the unit via USB. With the SP5's power off, connect a USB cable from a computer to the USB port on the SP5's rear panel. Power-up the SP5, press the Global Mode button, then select the Save All? dialog.

Press the **Next** button–the display will show the message `Save the file`? and the SP5 will appear as a removable disk/drive on your computer. Press the **Next** button again to save the files to the SP5 removable disk/drive. The display briefly flashes a Saving... message then shows the message `Copy drive from file, into your PC`. Open the SP5 removable disk/drive and copy the file to your computer.

Pressing **Previous** will cancel the save operation and recall the `Save All?` dialog. If an error occurs during the save operation, then the display will show the error message, `Save Error`.

If the SP5 is not connected to a computer, the display will show the error message `Connect USB cable`. Pressing the **Previous** button will recall the `Save All?` dialog—pressing the **Next** button will retry to connect.

The Load (Overwrite)? Dialog

NOTE: If the SP5 is currently connected to your computer as a MIDI controller, eject or Safely Remove it before continuing. Selecting the Load (Overwrite) Dialog will disconnect any MIDI device connected via USB.

The `Load (Overwrite)?` dialog allows you to load a file containing previously saved User Programs and User Setups from a computer connected to the SP5 via USB. Selecting `Load (Overwrite)?` loads the previously saved User Programs and User Setups and deletes (overwrites) the existing User Programs and Setups currently in the SP5.

With the SP5's power off, connect a USB cable from a computer to the USB port on the SP5's rear panel. Power-up the SP5, press the **Global** button, then select the `Load (Overwrite)?` dialog.

Press the **Next** button–the display will show the message `Copy file into drive` and the SP5 will appear as a removable disk/drive on your computer. Copy the file, containing your previously saved User Programs and User Setups, from your computer into the SP5 removable disk/drive. Pressing the **Next** button will load the file, the display shows `Loading...`, when complete `File loaded`.

Pressing the **Previous** button will cancel the load operation and recall the `Load (Overwrite)?` dialog.

If no file is in the SP5 temporary drive during the load or an error occurs during the load operation, then the display will show the error message, `Load Error` and a message specifying the reason for the error.

If the SP5 is not connected to a computer, the display will show the error message `Connect USB cable`. Pressing the **Previous** button will recall the Load (Overwrite)? dialog—pressing the **Next** button will retry to connect.

The Load (Fill)? Dialog

NOTE: If the SP5 is currently connected to your computer as a MIDI controller, eject or Safely Remove it before continuing. Selecting the Load (Fill) Dialog will disconnect any MIDI device connected via USB.

The **Load (Fill)?** dialog allows you to load a file containing previously saved User Programs and User Setups from a computer connected to the unit via USB. The loaded User Programs and User Setups will fill any available location.

With the SP5's power off, connect a USB cable from a computer to the USB port on the SP5's rear panel. Power-up the SP5, press the **Global** button, then select the **Load (Fill)?** dialog.

Press the **Next** button–the display will show the message **Copy file into drive** and the SP5 will appear as a removable disk/drive on your computer. Copy the file, containing your previously saved User Programs and User Setups, from your computer into the SP5 removable disk/drive. Pressing the **Next** button will load the file, the display shows **Loading...**, when complete **File loaded**.

Pressing the **Previous** button will cancel the load operation and recall the **Load (Fill)?** dialog.

If no file is in the SP5 temporary drive during the load or an error occurs during the load operation, then the display will show the error message, **Load Error** and a message specifying the reason for the error.

If the SP5 is not connected to a computer, the display will show the error message **Connect USB cable**. Pressing the **Previous** button will recall the Load (Fill)? dialog—pressing the **Next** button will retry to connect.

Chapter 10
System Mode

CAUTION: DO NOT ATTEMPT TO MAKE ANY CHANGES IN SYSTEM MODE UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS ENTIRE CHAPTER.

This chapter will help you familiarize yourself with the functions of System Mode.

System Mode allows you manage and upgrade the OS software of your SP5 as well as perform diagnostic tests of the instrument's various internal systems and processes. Note that the functions that you have access to in System Mode govern the operation of your SP5, so only use System Mode when you must perform essential maintenance tasks.

To enter System Mode, follow these steps:

1. Power off your SP5.
2. Press and the hold the **Shift** button, and power on the unit. The display will show the text "Loading..." as if you were normally starting up the unit. Make sure to keep holding the **Shift** button until the display shows the following:

.

3. Release the **Shift** button—at this point, you are in System Mode.

System Mode includes the following five menu options:

- Run SP5
- Update Software
- Run Diagnostics
- System Reset
- File Utilities

CAUTION: THE SYSTEM RESET AND FILE UTILITIES OPERATIONS BOTH ERASE ALL USER OBJECTS.

System Mode Buttons

The Value and Chan/Param buttons perform the following functions in System Mode:

Previous	Use the **Previous** button to return to the previous menu. Similar to a "cancel" button.
Next	Use the **Next** button to confirm a selection and move into sub-menu if any. Like an "OK" button.
Chan / Param Up	Use the **Chan / Param Up** button to select the next menu item, menu item parameter or read Diagnostic test messages.
Chan / Param Down	Use the **Chan / Param Down** button to select the previous menu item, menu item parameter or read Diagnostic test messages.

Run SP5

This is the first System Mode menu item. Pressing the **Next** button will load the OS and the SP5 will start up as if you just switched on the unit (except for the `Loading...` message that happens when you first start up the unit).

Update Software

Update Software has two parameters: Update and Restore. Select Update to install a new OS and Objects version, or select Restore to the install the previous OS version. The new OS and Object files are combined in one file (.KUF).

Update

1. Obtain the Update file from the Kurzweil website or another reliable source and save it in a known folder or directory on your computer.
2. Connect the SP5 (powered off) to your computer with a USB cable.
3. Follow the instructions specified on *page 10-1* to enter System Mode. The SP5 will appear as a removable disk/drive on your computer.
4. Press the **Chan / Param Up (^)** button once. The display shows `Update Software`.
5. Press the **Next** button once. The display shows `Update`.

6. To select Update, press the **Next** button once. The display shows `Copy file To drive and press OK to continue`. Copy the file to the SP5 removable disk/drive on your computer. Once copied, "Safely Remove" or "Unmount" the removable disk/drive from your computer.
7. Press the **Next** button on the SP5. If the .KUF file is valid, the SP5 will display the message `Updating`. This will take a minute or two.
8. Once you see a `Done` message, power cycle the unit or press the **Previous** button to return to the System Mode main menu.

Restore

Whenever you update the SP5's software, a backup of the currently installed software is made. This is in case of a need to revert back to the old software, such as if the new update has problems or for troubleshooting.

NOTE: Only the previously installed version of the software is backed up. When you perform a `Restore` operation again, the current version is backed up. So, it's possible to go back and forth between versions.

Unlike the Update operation, the Restore operation can be performed without a computer connected to the SP5:

1. Follow the instructions specified on *page 10-1* to enter System Mode.
2. Press the **Chan / Param Up (^)** button once. The display shows `Update Software`.
3. Press the **Next** button once. The display shows `Update`.
4. Press the **Chan / Param Up (^)** button again. This display shows `Restore`.
5. Press the **Next** button to restore the previous software version.
6. Press the **Previous** button to cancel and return to the System Mode main menu.

Run Diagnostics

You will most likely not need to use the Run Diagnostics operations in normal cases. These operations are mostly used at the factory and service centers by engineers for troubleshooting hardware problems. But, in some cases you might be required to run these diagnostics for troubleshooting and diagnosing symptoms. In these cases, following the direction of an authorized Kurzweil technician.

System Reset

CAUTION: THIS OPERATION ERASES ALL USER OBJECTS.

If you've made many complex updates to your Objects, and have saved a number of files to your computer, you might want to restore the instrument to its default state. This is especially helpful if you're having problems getting Programs or Setups to work properly, or think there may be some kind of underlying hardware problem.

To clear all user objects and restore the factory default state, select the System Reset menu option. Press the **Chan / Param Up (^)** button until you see `System Reset` in the display, then press the **Next** button. The display will scroll the message `Delete all user objects?`. Press the **Next** button to reset the SP5, or press the **Previous** button to cancel.

Remember to save your User Programs and User Setups to your computer following the instructions in *The Save All? Dialog on page 9-7*. Once deleted, these files are completely removed from the SP5 and there is no way to retrieve them.

File Utilities

CAUTION: THIS OPERATION ERASES THE OPERATING SYSTEM, ALL FACTORY OBJECTS AND ALL USER OBJECTS.

File Utilities has only one operation: Format. Performing this operation will format the SP5's system flash memory and erase the OS software as well as *all* Objects. Do not do this unless you think it is necessary in order to improve the performance of your SP5. Should you decide to do so, be sure to back up all of your files and software. After you do this, System Mode will still be available, so you can run updates and get your SP5 up-and-running again. After a Format the unit will come up in System Mode by default.

To perform a Format, follow these steps:

1. Follow the instructions specified on *page 10-1* to enter System Mode.
2. Press **Chan / Param Down** (v) button once. The display shows `File Utilities`. Press **Next** to select this operation. The unit display the message `Format Flash`.
3. Press the **Next** button to format the SP5.
4. Press the **Previous** button to cancel and return to the System Mode main menu.

Chapter 11
Tutorials

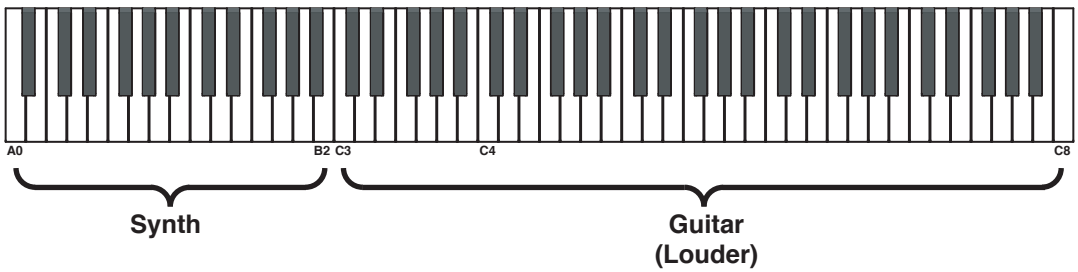
This chapter contains tutorials on editing Objects. By going through them step-by-step, you will better understand the process of the editing Setups. Additionally, this chapter will point you in the right direction for descriptions on performing certain technical tasks.

Creating a Setup from a Program

These tutorials will help you create a two-Zone Setup (as either a Split or a Layer) from a Program. Recall that when you create a Split or Layer while in Program Mode, you are in fact creating a Setup. These Functions are convenient, as you do not need to go through Edit Setup Mode to delineate Zones, assign Programs, etc. You can simply hit the **Split** or **Layer** Function button, and the SP5 automatically creates a two-Zone Setup for you, with default values for the parameters of the Split or Layer.

Creating a Split Setup from a Program

As an example for this tutorial, let's consider creating a Split Setup with a synth Program for the left-hand keyboard region (aka, the Secondary Voice) and a guitar Program for the right-hand keyboard region (aka, the Primary Voice). Let's make the division of regions be at B2 (an octave and a half-step below C4, or middle C) so that the right-hand region has a lot of "room" for soloing. Finally, let's have the right-hand region be slightly louder than the left-hand region, and have the left-hand region lowered by an octave. The following figure illustrates this scenario:



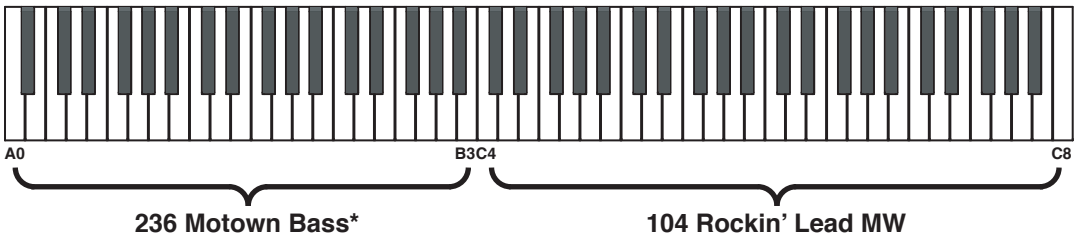
To create this Split Setup follow these steps. Be careful not to exit any of the Split parameter pages before the Split Setup is complete. If you do, exit Program Mode and enter it again and then start from step 1:

1. Enter Program Mode by pressing the **Program** button. Using the Alpha Wheel, the Value buttons, or the alphanumeric data entry buttons (see Note below) choose the Program you want for the Primary Voice of the Split. For our example, let's choose Program **104 Rockin' Lead MW**.

NOTE: You can use the **Keypad** button to directly enter a Program ID number. Press the **Keypad** button and enter the ID number using the alphanumeric data entry buttons, then press the **Enter** button to confirm it. The **Keypad** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

Press the **Split** Function button. This creates a Setup with two active Zones split at middle C. In this case, Program **104 Rockin' Lead MW** as the Primary Voice. The Secondary Voice will be the last used Split Program or the default Program (ID number **236 Motown Bass**) if this is the first time your using the Split Function since power-up.

The following figure illustrates our current Split Setup:

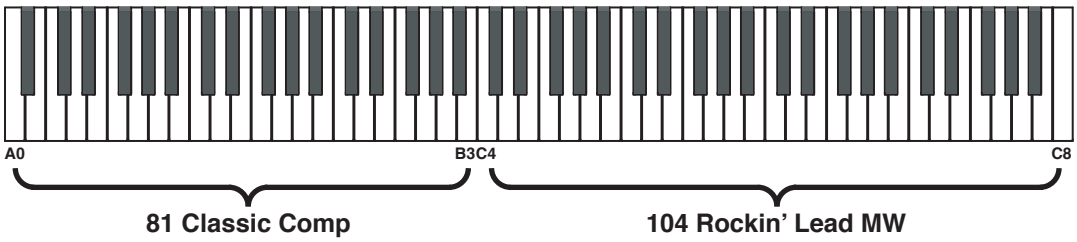


(*Default or last used Program)

Note that as soon as we press the Split Function, button the display shows the Secondary Voice and the **Save** button illuminates. This simply indicates that a change has been made. The **Save** button will be involved in the final step of this process.

2. Let's now change the Split Program. Recall that the Split Program determines the Program for the Secondary Voice. The figure below shows the default Program as the Secondary Voice:

Use the Alpha Wheel, the Value buttons, or the alphanumeric data entry buttons (see the **Note** on page 11-2.) to select the Secondary Voice. For our example, let's choose Program **81 Classic Comp** for the Split Program. The following figure illustrates our current Split Setup:



3. Let's now change the Split Volume. Recall that the Split Volume determines the *relative* volumes of the two Voices: positive values increase the volume of the Secondary Voice and decrease the volume of the Primary Voice. Negative values decrease the volume of the Secondary Voice and increase the volume of the Primary Voice.

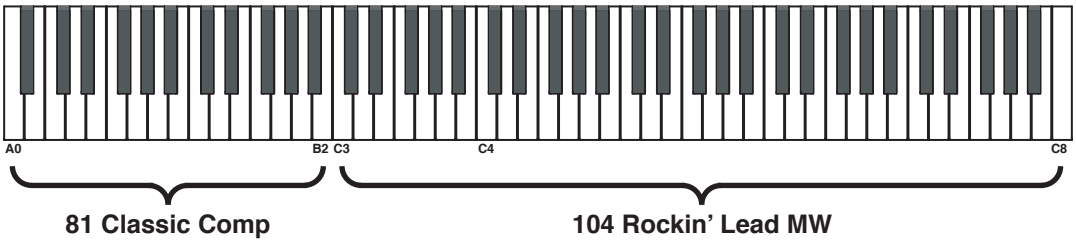
4. First, use the **Chan / Param** buttons to select the Split Volume parameter. Use the Alpha Wheel, the Value buttons, or directly enter the new parameter value using the alphanumeric data entry buttons, to set the Split Volume. For our example, since we want our guitar to be slightly louder than our synth, let's set this parameter to **-20**.

5. Let's now change the Split Key. Recall that the Split Key determines the lowest note in the Primary Zone—one note below this note is the highest note in the Secondary Zone. First, use the **Chan / Param** buttons to select the Split Key parameter.

NOTE: You can directly select the Split Key by holding down the **Select** category button and then striking the desired key on the keyboard (you can also use the Alpha Wheel or the Value buttons to set this parameter).

6. For our example, let's select **B2** by the method just described or by using the Alpha Wheel or Value buttons to set Split Key to **47** (recall that middle C, or C4, has a note number of 60).

   The following figure illustrates our current Split Setup:



7. Let's now change the Split Transposition. Recall that the Split Transposition determines the transposition of the Secondary Voice relative to that of the Primary Voice. It can be set to **-24**, **-12**, **0**, **12**, and **24**.

   First, use the **Chan / Param** buttons to select the Split Transposition parameter. Then, use the Alpha Wheel or the Value buttons to set the Split Transposition. (You

can also directly enter the new parameter value, using the **Keypad** category button and the alphanumeric data entry buttons, see the **Note** on page 11-2.) For our example, since we want our synth to be one octave lower than normal, let's set this parameter to **-12**.

8. Finally, let's now save our newly-created Setup. To save our Split Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights.

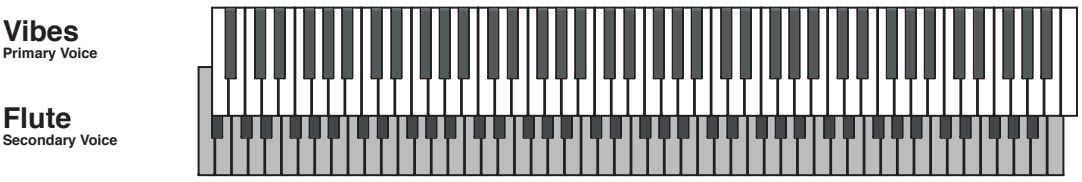
9. At this point, you can change the location and the name of the new Layer Setup, see *Saving User Setups on page 8-17*.

10. Press the **Save** button to save the new setup. Pressing a Mode or Function button while the **Save** button is blinking will cancel the save operation.

    Your Setup is now complete!

Creating a Layer Setup from a Program

As an example for this tutorial, let's consider creating a Layer Setup with a layer of vibes and a layer of flute. Let's have the vibes be slightly louder than the flute, and have the flute lowered by an octave. For our example, we'll refer to the vibes as the Primary Voice and the flute as the Secondary Voice. The following figure illustrates this scenario:



To create this Layer Setup follow these steps. Be careful not to exit any of the Layer parameter pages before the Layer Setup is complete. If you do, then simply exit Program Mode and then enter it again and start from step 1:

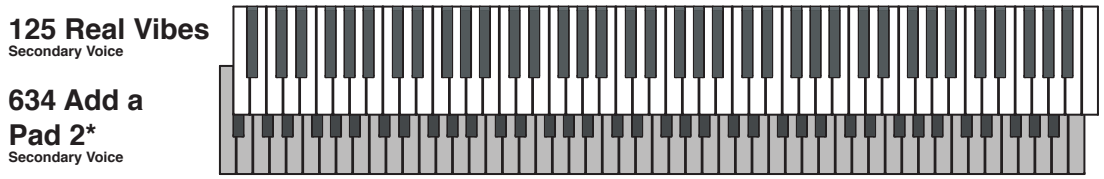
1. Pressing the **Program** button to enter Program Mode. Using the Alpha Wheel, the Value buttons, or the alphanumeric data entry buttons (see Note below) choose the Program you want for the Primary Voice of the Layer. For our example, let's choose Program **125 Real Vibes**.

NOTE: You can use the **Keypad** button to directly enter a Program ID number. Press the **Keypad** button and enter the ID number using the alphanumeric data entry buttons, then press the **Enter** button to confirm it. The **Keypad** button's LED is lit when the button is active and remains lit until you press the button again to disable it.

2. Press the **Layer** Function button. This creates a Setup with two active Zones with the same keyboard regions—i.e., overlapping keyboard regions. In this case, Program **125 Real Vibes** as the Primary Voice. The Secondary Voice will be the last used Layer Program or the default Program (ID number **634 Add a Pad 2**) if this is the first time your using the Layer Function since power-up.

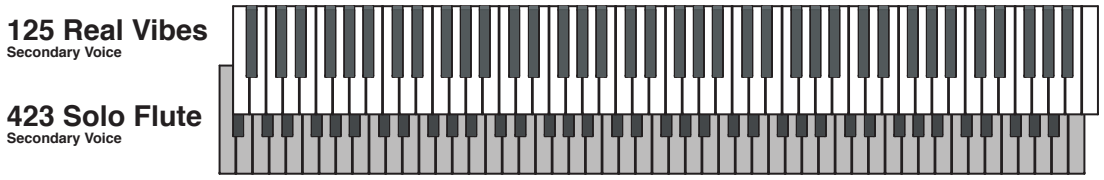
   Note that as soon as we press the Layer Function button, the display shows the Secondary Voice and the **Save** button illuminates. This simply indicates that a change has been made. The **Save** button will be involved in the final step of this process.

3. Let's now change the Layer Program. Recall that the Layer Program determines the Program for the Secondary Voice. The figure below shows the default Program as the Secondary Voice:



(*Default or last used Program)

4. Use the Alpha Wheel the Value buttons, or the alphanumeric data entry buttons (see the **Note** on page 11-2.) to select the Secondary Voice. For our example, let's choose Program **423 Solo Flute** for the Layer Program. The following figure illustrates our current Layer Setup:



5. Let's now change the Layer Volume. Recall that the Layer Volume determines the *relative* volumes of the two Voices: positive values increase the volume of the Secondary Voice and decrease the volume of the Primary Voice. Negative values decrease the volume of the Secondary Voice and increase the volume of the Primary Voice.

   First, use the **Chan / Param** buttons to select the Layer Volume parameter. Then, use the Value buttons to set the Layer Volume. For our example, since we want our vibes to be slightly louder than our flute, let's set this parameter to **-20**.

6. Let's now change the Layer Transposition. Recall that the Layer Transposition determines the transposition of the Secondary Voice relative to that of the Primary Voice. It can be set to **-24**, **-12**, **0**, **12**, and **24**.

   First, use the **Chan / Param** buttons to select the Layer Transposition parameter. Then, use the Alpha Wheel or Value buttons to set the Layer Transposition. (You can also directly enter the new parameter value, using the **Keypad** category button and the alphanumeric data entry buttons, see the **Note** on page 11-2.) For our example, since we want our flute to be one octave lower than normal, let's set this parameter to **-12**.

7. Finally, let's now save our newly-created Layer Setup. To save our Layer Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights.

8. At this point, you can change the location and the name of the new Layer Setup, see *Saving User Setups on page 8-17*.

9. Press the **Save** button to save the new setup. Pressing a Mode or Function button while the **Save** button is blinking will cancel the save operation.

10. Your Layer Setup is now complete!

Creating a Layer Setup with Velocity-dependent Zones

This tutorial will help you create a Setup with two active Zones such that one Zone will be heard when the Setup is played softly and the other Zone will be heard when the Setup is played loudly. As an example for this tutorial, let's consider creating a Setup in which an acoustic guitar is heard when the Setup is played softly, and an electric guitar is heard when the Setup is played loudly.

1. First we need a Setup with two active Zones. The easiest way to create such a Setup that will serve the purpose of this tutorial is by creating a two-Layer Setup (see *Creating a Layer Setup from a Program on page 11-4*). For our example, let's choose Program **97 Boutique Six Str** for our Primary Voice and Program **104 Rockin' Lead MW** for our Secondary Voice. Set the following Layer parameters like so:

2.

Layer Program	**104 Rockin' Lead MW**
Layer Volume	**20**
Layer Transposition	**0**

   Remember to save your Setup!

   Alternatively, we could edit a factory Setup. This, however, would take longer since we would have to check all of the parameters for both active Zones to make sure that they are equal before we start editing the parameters that differ between Zones.

Press the **Edit Setup** button to enter Edit Setup Mode. In this Mode, we will alter the velocity ranges of the Zones in our Setup. See *Edit Setup Mode on page 8-1* for more information on the parameters of a Setup.

For Zone 1 (our acoustic guitar Zone), set the following two parameters like so (use the **Chan / Param** buttons to select the parameters and the Alpha Wheel, the Value buttons, or alphanumeric buttons to edit them):

Low Velocity	**1**
High Velocity	**96**

For Zone 2 (our acoustic guitar Zone), set the following two parameters like so (again, use the **Chan / Param** buttons to select the parameters and the Alpha Wheel, the Value buttons, or alphanumeric buttons to edit them):

Low Velocity	**97**
High Velocity	**127**

3. Finally, let's now save our newly-created Setup. To save our Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights.

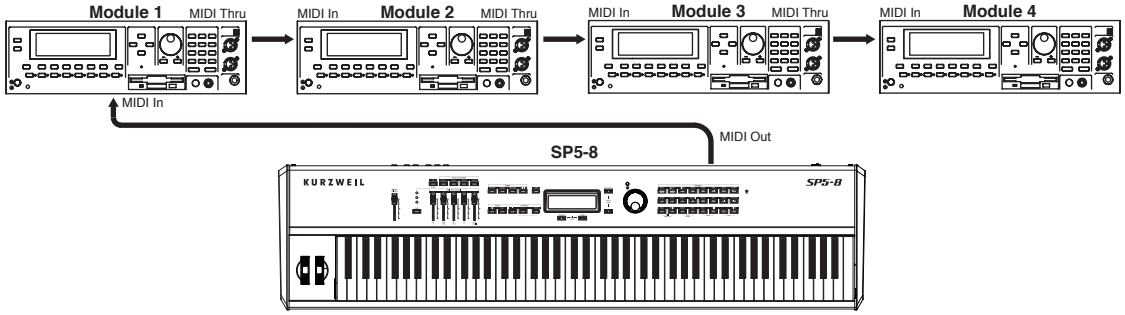
4. At this point, you can change the location and the name of the new Layer Setup, see *Saving User Setups on page 8-17*.

5. Press the **Save** button to save the new setup. Pressing a Mode or Function button while the **Save** button is blinking will cancel the save operation.

   Your Setup is now complete!

Controlling Multiple Modules with a Single Setup

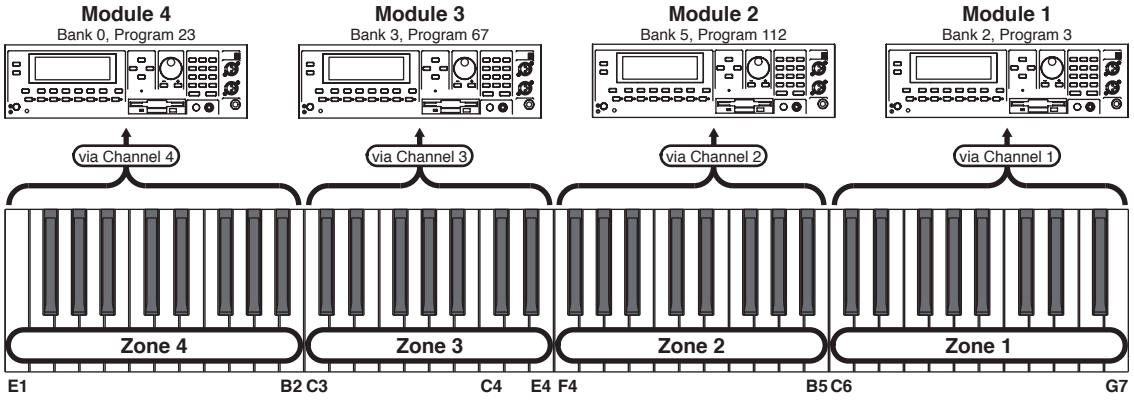
As an example for this tutorial, let's consider creating a Layer Setup with a layer of vibes and a layer of flute. Let's have the vibes be slightly louder than the flute, and have the flute lowered by an octave. For our example, we'll refer to the vibes as the Primary Voice and the flute as the Secondary Voice. The following figure illustrates this scenario:



Note that the SP5 is being used as the MIDI controller for all four of the modules. To be able to control each of the four modules individually, we need to create a Setup with four non-overlapping Zones, each of which will control a particular module. For our example, let's say the following:

- We want only to use the SP5 as a MIDI controller for the other modules.
- All of our Modules will have the same panning, volume, velocity range, and bend range.
- The Foot Switch will act as a sustain pedal for only Module 1.
- The Mod Wheel will affect only Module 2, for which it will act as a Mod Wheel.
- Slider 1 will affect only Module 3 and Module 4, it will act as a Volume control for both.
- The Zones will have the following ranges and affect only the following Modules set to the following MIDI Channels, Programs, and Banks:

Zone	Range	Module	Channel	Bank	Program
Zone 1	C6-G7	Module 1	1	2	3
Zone 2	F4-B5	Module 2	2	5	112
Zone 3	C3-E4	Module 3	3	3	67
Zone 4	E1-B2	Module 4	4	0	23



1. First, we need a Setup. Let's pick any factory Setup to work with. We will alter the parameter values of the Zones in the steps to follow.
2. Press the **Edit Setup** button to enter Edit Setup Mode. In this Mode, we will alter the parameters of our Setup. See *Edit Setup Mode on page 8-1* for more information on the parameters of a Setup.
3. Let's now set the parameters that will be the same for all Zones. Note that if the parameter is the same as the default value, you can simply press the Value buttons simultaneously to set the parameter to the default value. In the list below, an asterisks (*) indicates a default value:

Parameter for Each Zone	Value
Destination	MIDI
Bank Mode	Ctl0/32*
Zone Status	Active*
Entry Program Change	On*
Transpose	0*
Entry Pan	64*
Entry Volume	127*
Low Velocity	1*
High Velocity	127*
Bend Range Down	12 ST*
Rend Range Up	2 ST*

Since we will not be using local sound, the settings for the following parameters are inconsequential:

Parameter for Each Zone
Local Program
Destination
Zone Status
Entry Program Change
Aux Send Level

Common Parameter
Aux Effect Override
Aux Effect Channel

4. Let's now set the following Zone-specific parameters thusly (note that "Unassigned Number" means a MIDI controller number that is unassigned on the target Module):

Zone 1

Parameter	Value
Channel	1
MIDI Bank	2
MIDI Program	3
Low Key	C6
High Key	G7
Foot Switch Destination	64
Foot Switch Mode	Momentary
Foot Switch Entry State	Off
Foot Switch Exit State	Off
All Other Controller Destinations	Unassigned Number
All Other Controller Entry States	0
All Other Controller Exit States	0

Zone 2

Parameter	Value
Channel	2
MIDI Bank	5
MIDI Program	112
Low Key	F4
High Key	B5
Mod Wheel Destination	1
Mod Wheel Entry State	0
Mod Wheel Exit State	0
All Other Controller Destinations	Unassigned Number
All Other Controller Entry States	0
All Other Controller Exit States	0

Zone 3

Parameter	Value
Channel	3
MIDI Bank	3
MIDI Program	67
Low Key	C3
High Key	E4
Slider 1 Destination	7
Slider 1 Entry State	127
Slider 1 Exit State	127
All Other Controller Destinations	Unassigned Number
All Other Controller Entry States	0
All Other Controller Exit States	0

Zone 4

Parameter	Value
Channel	4
MIDI Bank	0
MIDI Program	23
Low Key	E1
High Key	B2
Slider 1 Destination	7
Slider 1 Entry State	127
Slider 1 Exit State	127
All Other Controller Destinations	Unassigned Number
All Other Controller Entry States	0
All Other Controller Exit States	0

5. Let's now set the MIDI receive channels on each of the Modules in our rig. Note that they will be the same as the channels of their corresponding Zone:

Module	Channel
Module 1	1
Module 2	2
Module 3	3
Module 4	4

6. Finally, let's now save our newly-created Setup. To save our Layer Setup, press the **Save** button once. The **Save** button's LED begins to blink and the **Keypad** button's LED lights.

7. At this point, you can change the location and the name of the new Setup, see *Saving User Setups on page 8-17*.
8. Press the **Save** button to save the new setup. Pressing a Mode or Function button while the **Save** button is blinking will cancel the save operation.
9. Your Setup is now complete!

Other Tutorials

Connecting to Your Audio System

See *Connecting to Your Audio System on page 2-4*.

Connecting MIDI

See *Connecting MIDI on page 2-7*.

Managing Object Data

See *The Save All? Dialog on page 9-7* and *The Load (Overwrite)? Dialog on page 9-8*.

Updating Software

See *Update Software on page 10-2*.

Restoring Factory Defaults

There are two ways to restore factory defaults, both of which result in all User Programs and User Setups being deleted. The first method is described in *The Hard Reset? Dialog on page 9-7*. The second is described in *System Reset on page 10-4*.

CAUTION: RESTORING FACTORY DEFAULTS CANNOT BE UNDONE. BACK UP YOUR FILES BEFORE DOING SO BY FOLLOWING THE PROCEDURE IN *The Save All? Dialog on page 9-7.*

Chapter 12 Troubleshooting

Maintenance

Aside from normal care in handling and use, your SP5 requires no regular maintenance. Clean with a soft cloth dampened with water. Never use abrasives or solvents as they may damage the unit's paint, markings, info strip and display lens. There are no batteries inside to replace—ever. Instead of volatile SRAM used in most other instruments, your SP5 uses nonvolatile Flash Memory for storage, which retains information without power.

Common Problems

Below is a list of the most commonly encountered problems and diagnoses for each.

Power Problems

This is the normal power-up sequence:

1. The display backlight turns on.
2. "Loading..." appears on the display for a few seconds.
3. The unit enters Program Mode with **1 Pro Piano** selected.

If nothing at all happens when you turn the power switch on, check if one of the following might be the issue:

The power adapter is not plugged securely into the wall outlet.	Plug the power adapter securely into the wall outlet.
The cord from power adapter is not plugged securely into the SP5 DC power jack.	Plug the power adapter securely into the SP5 DC power jack.

The power adapter ratings does not match the required ratings for the SP5. The power adapter specifications are: 15V DC, 1.0 amp, center pin positive, 5.5mm OD, 2.5mm ID coax type plug.	Obtain a compatible power adapter.
The wall outlet, power strip, or extension cord is defective or damaged.	Use a different wall outlet, power strip, or extension cord.

If there's evidence of the unit receiving power, but operation is abnormal, check if one of the following might be the issue:

The power adapter ratings does not match the required ratings for the SP5. The power adapter specifications are: 15V DC, 1.0 amp, center pin positive, 5.5mm OD, 2.5mm ID coax type plug.	Obtain a compatible power adapter.
The wall outlet voltage is below 90 volts due to overload.	Try a different outlet on a different circuit.
The power adapter plug does not snugly fit into the DC power jack, causing it to wobble and provide intermittent power.	Obtain a compatible power convert.

Powers up, Display is Blank

The Display is blank or difficult to read.	Slowly turn the Display contrast knob (located above the Alpha Wheel) to adjust the Display.

Audio Problems

CAUTION: DO NOT TROUBLE SHOOT AUDIO PROBLEMS USING HEADPHONES. ADDITIONALLY, ALWAYS BE AWARE OF THE VOLUME LEVELS ON THE SP5 AND ON THE CONNECTED AUDIO SYSTEM OR MIXER.

NOTE: When diagnosing audio problems, set the SP5 to play its demo sequence rather then intermittently pressing keys. This will prevent any unexpectedly loud volume changes.

If there is no sound from your SP5, check if one of the following might be the issue:

The volume slider is turned down.	Slowly push the volume slider up.
Headphones or an audio cable is plugged into one of the Headphones jacks.	Unplug the headphones or cable from the Headphones jack.
The volume control on the audio system or mixer is turned down.	Slowly turn the volume control up.
The signal source selection on the audio system or mixer is incorrect.	Set the volume of the audio or mixer to the lowest level, select the correct signal source, and then slowly turn up the volume.
The audio cables are not securely plugged into the SP5, audio system, or mixer.	Set the volume of the audio or mixer to the lowest level, securely plug in the audio cables on both ends, and then slowly turn up the volume.
The audio cable is of an incorrect type.	Obtain and securely connect an audio cable of the correct type. The SP5 accepts both balanced (TS) and unbalanced (TRS) 1/4-inch audio cables.

If you can hear sound but it is low or distorted, check if one of the following might be the issue:

The audio cables are not securely plugged into the SP5, audio system, or mixer.	Set the volume of the audio system or mixer to the lowest level, securely plug in the audio cables on both ends, and then slowly turn up the volume.
A received MIDI volume message has specified a low volume.	Set the volume of the audio system or mixer to the lowest level. Disconnect all MIDI cables, set the Destination parameter in Global Mode to **Local** or **MIDI+Local**, and reset the volume level on the SP5. Finally, slowly turn up the volume level of the audio system or mixer.
The current Setup has another controller assigned to volume, and it is turned down.	Select a different Setup. Or change the problematic controller setting by editing the Setup in Edit Setup Mode.

The input to the audio system is set for low impedance instead of high impedance.	Set the volume of the audio or mixer to the lowest level, change the impedance setting, and then slowly turn up the volume of the audio system or mixer.
The input trim to the audio system or mixer is set too low.	Slowly turn up the trim.

MIDI Problems

If you are experiencing problems sending MIDI to an external module, check if one of the following might be the issue:

The MIDI cable is not securely plugged in at both ends.	Securely plug in the MIDI cable at both ends.
The MIDI connections are wrong.	To send MIDI, plug the MIDI cable into the SP5's MIDI Out port and into the module's MIDI In port.
The MIDI cable is defective.	Obtain and securely connect a new MIDI cable.
The MIDI transmit channel does not match that of the receiving device.	Change the channel on either the SP5 or on the device such that the channels match.

If there are problems with the internal sound module receiving MIDI from an external device like a computer sequencer, check if one of the following might be the issue:

The MIDI transmit channel of transmitting device does not match that of the receiving Program or Zone on the SP5.	Change the channel on either the SP5 or on the computer such that the channels match.
The MIDI cable is not securely plugged in at both ends.	Securely plug in the MIDI cable at both ends.
The MIDI connections are wrong.	To receive MIDI, plug the MIDI cable into the SP5's MIDI In port and into the module's MIDI Out port.

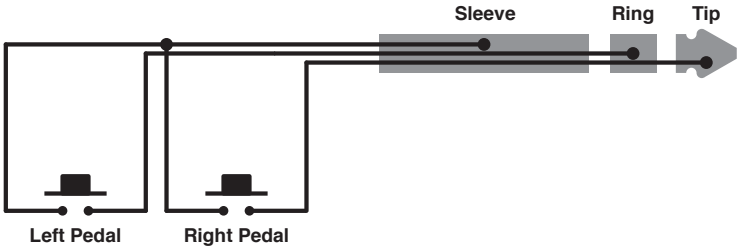
Pedal Problems

Before you consult this section, be sure to read *Connecting Pedals on page 2-5*.

Switch Pedal Problems

If you are having problems with connecting or using a switch pedal, check if one of the following might be the issue:

- Sustain or Sostenuto is stuck "on". Be sure the pedal is plugged in before switching on the power. Turn power off then on if necessary.
- The pedal is acting backwards ("on" when up instead of down). Power cycle the unit making sure to NOT press on the pedal during startup.
- A dual switch pedal is not working correctly, see *Connecting a Switch Pedal on page 2-6*. A dual switch pedal must be wired as shown below. Any other wiring pattern will not work correctly.

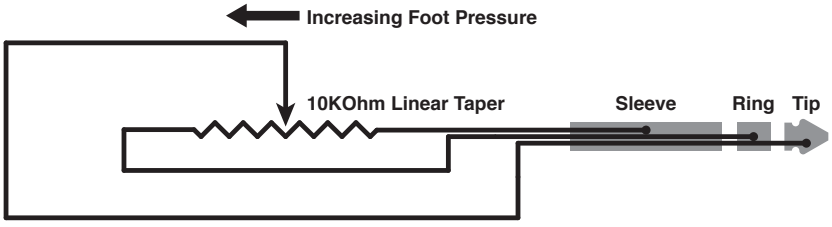


Continuous Control Pedal Problems

The continuous control pedal must be wired to a single stereo 1/4-inch plug as follows:

- Wiper to Tip
- Top end of resistance element to Ring
- Bottom end of resistance element to Sleeve

These connections are shown schematically below:



Use the Right Impedance, Taper, and Range

For best results, use a Kurzweil CC-1 continuous control pedal, available from your dealer. The CC-1 meets all of the requirements described above at an economical price. A continuous control pedal should have an impedance between 5,000 and 100,000 ohms. An impedance less than 5,000 may overload the reference voltage source in the SP5 and interfere with operation of other controls like the MASTER VOLUME slider or the other sliders. An impedance more than 100,000 may result in electrically noisy operation, which may cause your SP5 to send MIDI controller messages constantly.

The taper of the control should be linear for easy, predictable control. Pedals designed for volume control typically have an exponential (or anti log) taper, which results in most of their range being concentrated in the upper half of pedal's path of travel.

Pedals may have a control range that is less than 100%. Make sure that when the pedal is in the fully down position, it's impedance is 0, and when it is in the fully up position, the impedance is at its maximum rating.

If None of the Above...

If your problem is not covered above, or none of the suggestions seems to work, first check back and review the relevant sections of this manual. Many difficulties are just programming problems caused by settings of Setup parameters. If you want to be sure that all of the factory defaults are in place, see *Restoring Factory Defaults on page 12-6*.

Also be sure to check out Kurzweil's website for additional SP5 information that may have been published since this manual was written: www.kurzweil.com.

Service Centers

Contact the nearest Young Chang office Kurzweil service representative. See *page iv* in the front matter of this manual for contact information.

Restoring Factory Defaults

There are two ways to restore factory defaults, both of which delete all User Programs and User Setups. The first method is described in *The Hard Reset? Dialog on page 9-7*. The second is described in *System Reset on page 10-4*.

CAUTION: RESTORING FACTORY DEFAULTS CANNOT BE UNDONE. BACK UP YOUR FILES BEFORE DOING SO BY FOLLOWING THE PROCEDURE IN *The Save All? Dialog on page 9-7.*

Diagnostics

You will most likely not need to use the System Mode diagnostic operations in normal cases. These operations are mostly used at the factory and service centers by engineers for troubleshooting hardware problems. But, in some cases you might be required to run these diagnostics for troubleshooting and diagnosing symptoms. In these cases, follow the direction of an authorized Kurzweil technician.

If None of the Above...

Appendix A
MIDI Implementation

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	Memorized
	Changed	1–16	1–16	
Mode	Default	Mode 3	Mode 3	Use Multi-track mode (see *FX Select (FXSel) on page 9-4*) for multitimbral applications
	Messages			
	Altered			
Note Number			0–127	
	True Voice	0–127	0–127	
Velocity	Note ON	O	O	
	Note OFF	O	O	
After Touch	Keys	X	O	
	Channels	O	O	
Pitch Bender		O	O	
Control Change		0–31 32–63 (LSB) 64–127	0–31 32–63 (LSB) 64–127	Controller assignments are programmable
Program Change		0–1087	0–1087	Standard and custom formats
	True #	0–127	0–127	
System Exclusive		O	O	
System Common	Song Pos.	X	X	
	Song Sel.	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Messages	X	X	
Aux Messages	Local Control	O	O	
	All Notes Off	O	O	
	Active Sense	X	X	
	Reset	X	X	
Notes		Manufacturer's ID = 07 Device ID: default = 0; programmable 0–127		

Mode 1: Omni On, Poly
Mode 2: Omni On, Mono
O = Yes
Mode 3: Omni Off, Poly
Mode 4: Omni Off, Mono
X = No

Appendix B
Physical Specifications

Keyboard:	88-key, fully-weighted graded hammer-action with velocity and pressure (After Touch) sensitive adjustable keys
Display:	2x20 character LCD w/ front-panel contrast adjust
Polyphony:	64 Voice Polyphony, dynamically allocated
Multitimbral:	16 parts (one per MIDI channel)
Quick Split/Layer:	Easy access with adjustable relative volume
Factory Presets:	Hunderds of Programs (ID numbers range between 0 – 1023), taken from the acclaimed PC3 sound set
Factory MIDI Setups:	Numerous Factory Setups, plus 64 User Setup locations with 4 programmable zones for splits and layers
Effects:	Dozens of complex effect chains taken from the PC3
Controllers:	• Pitch wheel • Modulation wheel • 5 front panel sliders • 2 mono switch pedal inputs • 1 continuous control pedal input
Analog Outputs:	• Two 1/4” balanced TRS analog (24-bit DACs) • +21DBu maximum output • 400Ω balanced source impedance • 24-bit D-to-A converters
Headphones:	1 rear panel 1/4” headphone output 8 Vrms maximum output, 47Ω source impedence
MIDI:	IN, OUT
USB:	Complete MIDI functionality over USB
	User Program/Setup file transfer to/from PC/Mac
	Operating System updates from PC/Mac
Height:	4.7” (12 cm)
Depth:	13.8” (35 cm)
Length:	54.8” (139.2 cm)
Weight:	46.3 lbs (21.0 kg)
Power:	External 15VDC 1.0A power supply

Index

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U

V

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