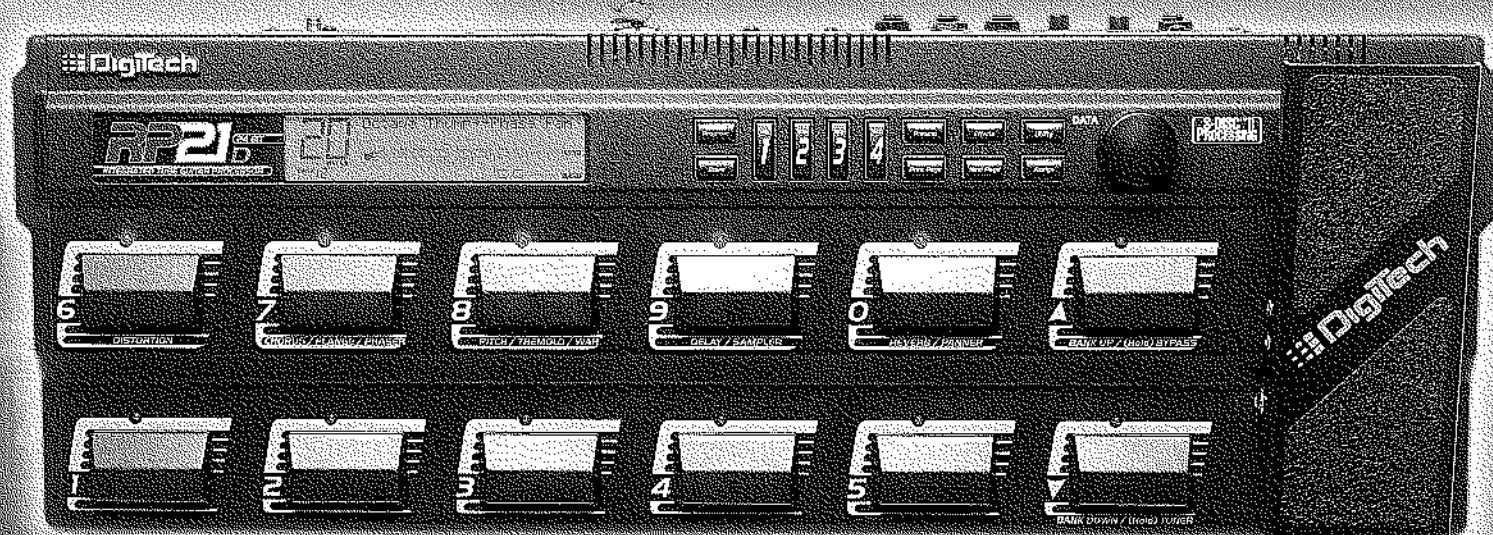


RP21_D

INTEGRATED TUBE GUITAR PROCESSOR



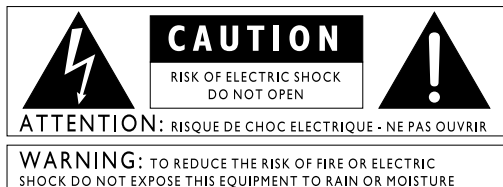
USER'S GUIDE

Digitech

8760 South Sandy Parkway, Sandy, Utah, USA

Visit us on the World Wide Web at: www.digitech.com

 A Harman International Company



These symbols are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash means that there are dangerous voltages present within the unit. The exclamation point indicates that it is necessary for the user to refer to the owners manual.

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

Disconnect the unit during storms to prevent damage.

U.K. Mains Plug Warning

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable facility. **Never under any circumstances should you insert a damaged or cut mains plug into a 13 amp power socket.** Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and MUST be ASTA approved to BS1362.

Safety Instructions

Notice for customers if your unit is equipped with a power cord.

Warning: This appliance must be earthed.

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

Green and Yellow - Earth Blue - Neutral Brown - Live

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

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

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

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

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

Warning

For your protection, please read the following:

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

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

Grounding or Polarization: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

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

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

For units equipped with externally accessible fuse receptacle: Replace fuse with same type and rating only.

Electromagnetic Compatibility

Operation is subject to the following conditions:

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

DECLARATION OF CONFORMITY

Manufacturer's Name: ***Digitech Electronics***

Manufacturer's Address: 8760 S. Sandy Parkway
Sandy, Utah 84070, USA

declares that the product:

Product Name: ***RP21, RP21D***

Product Options: All (requires a Class II power adapter that conforms to the requirements of
EN60065, EN60742, or equivalent.)

conforms to the following Product Specifications:

Safety: EN 60065 (1993)
IEC 65 (1985) with Amendments 1, 2 & 3

EMC: EN 55013 (1990)
EN 55020 (1991)

Supplementary Information:

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

Digitech

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Effective February 10, 1999

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Tel. 801-568-7638
Fax 801-568-7642

We at **Digitech** are very proud of our products and back-up each one we sell with the following *warranty*:

- 1. The warranty registration card must be mailed within ten days after purchase date to validate this warranty.*
- 2. Digitech warrants this product, when used solely within the U.S., to be free from defects in materials and workmanship under normal use and service.*
- 3. Digitech liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, provided the product is returned to Digitech WITH RETURN AUTHORIZATION, where all parts and labor will be covered up to a period of one year. A Return Authorization number may be obtained from Digitech by telephone. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.*
- 4. Proof-of-purchase is considered to be the burden of the consumer.*
- 5. Digitech reserves the right to make changes in design, or make additions to, or improvements upon this product without incurring any obligation to install the same on products previously manufactured.*
- 6. The consumer forfeits the benefits of this warranty if the product's main assembly is opened and tampered with by anyone other than a certified Digitech technician or, if the product is used with AC voltages outside of the range suggested by the manufacturer.*
- 7. The foregoing is in lieu of all other warranties, expressed or implied, and Digitech neither assumes nor authorizes any person to assume any obligation or liability in connection with the sale of this product. In no event shall Digitech or its dealers be liable for special or consequential damages or from any delay in the performance of this warranty due to causes beyond their control.*

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NOTE: The information contained in this manual is subject to change at any time without notification. Some information contained in this manual may also be inaccurate due to undocumented changes in the product or operating system since this version of the manual was completed. The information contained in this version of the owner's manual supersedes all previous versions.

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Section-1 Introduction

Congratulations on your purchase of the Digitech RP21D!

The DigiTech RP21D is one of the most powerful preamp processors in the world. The exclusive dual preamp paths, and palette of great digital effects, combined with the flexible routing and a digital output make the RP21D an extremely versatile sound shapingtool for your music in the studio or on stage. This user's guide is your key to understanding how to get the most out of the RP21D. Please read it carefully and familiarize yourself with the controls.

Your RP21D was carefully assembled and packaged at the factory. Before you proceed any further, make sure the following items are included:

- **(1) User's Guide**
- **(1) RP21D Preamp Processor**
- **(1) DigiTech Warranty Card**
- **(1) PS0940 or PS0920 Power Supply**

Please take a moment to fill out the warranty registration card, and be sure to save all packing materials. The warranty is your safeguard in the unlikely event that the unit requires servicing, and the packing materials should be used to return the unit.

Once again, thank you for your purchase, and enjoy your RP21D.

RP21D Features:

- **Dual Preamp Path**
- **Built-in Expression Pedal**
- **Tube Preamp (12AX7)**
- **Full Band Width Effects (20 Hz-20 kHz)**
- **24-bit Signal Path, 48-bit Internal Data Path**
- **Up to 4 Digital Effects at once**
- **Flexible Effect Routing**
- **S-DISC II Processing**
- **Programmable Speaker Cabinet Emulator**
- **Chromatic Tuner**
- **Full MIDI Implementation**
- **S/PDIF Digital Outputs**
- **Continuous Control of All Effects and Parameters**
- **Simple User Interface**

Quick Start

The RP21D comes with 128 pre-programmed factory presets, and 128 user presets. You will find that from the factory, the user presets are exact duplicates of the factory presets. This allows you to experiment without running the risk of losing any of the original sounds contained in the RP21D.

For those of you who prefer to burn now and read later, we've included this Quick Start section to get you up and running.

Making Connections:

Connect your instrument to the input jack on the rear panel. Connect from the Left Output (for mono operation), or the Left and Right Outputs (for stereo operation) to the input(s) of your amplifier(s) or power amp.

Apply Power:

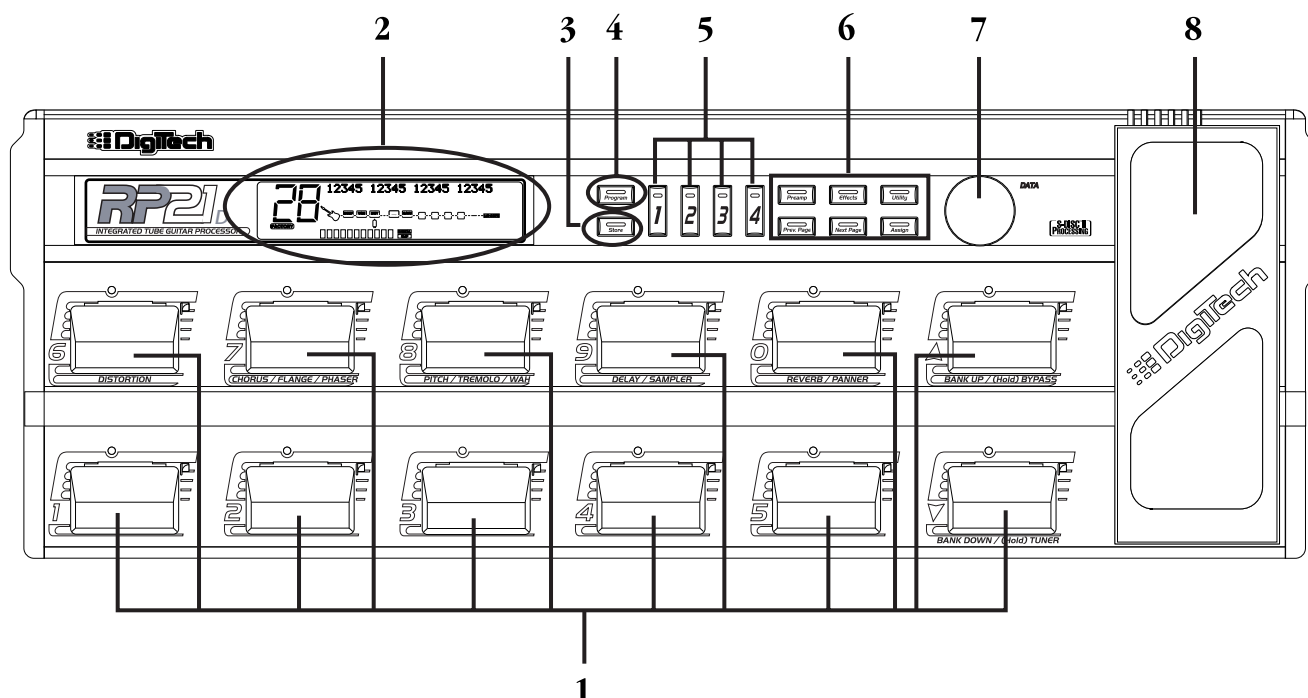
Turn the Output knob on the rear panel of the RP21D all the way down (fully counter clockwise). Connect the plug of the PS0940 power supply to the power jack on the RP21D. Connect the other end of the PS0940 power supply to an AC outlet. Begin playing your instrument and adjust the Input Level knob until the Input Clip LED flashes with strongest signal, then slightly reduce the Input Level. Turn the power of your amplifier(s) to the on position. Gradually increase the Output knob to achieve the desired volume.

Select Program:

Use the Footswitches or the Data Wheel to scroll through the different programs. Once you have found some Programs that suit your taste, you can alter the sounds to your specific needs. By pressing the Effects button, you can roll the Data Wheel to access any of the effects contained within your selected Program. The 1-4 buttons will select the specified parameters related to each effect. The Next Page, and Previous Page buttons will display all of the pages of related effect parameters. Once a parameter has been selected, you may increase or decrease the parameter value with the Data Wheel. You can adjust any of these parameters to your liking, and remember that you are not at risk of losing any sounds so, don't be afraid to experiment.

A Guided Tour of the RP21D

The Front Panel



1. Footswitches - The footswitches are used to call up Programs, change banks, access the tuner, bypass all effects, turn individual effects on and off, or change the value of a specific parameter.

2 Display - The display provides all information regarding the current Program, parameter edit functions, utility set up, and tuning indications.

3. Store Button- The Store button is used to save your custom edits to the user Programs. This button will light when changes have been made to any Program, indicating that to retain these changes, they must be stored.

4. Program Button- The Program button lights to indicate that you are in the Program mode as opposed to edit mode. While in Program mode, the RP21D provides access to all Programs, and the ability to turn effects on or off. You cannot modify your Programs in the Program mode. This button can act as an escape key taking you out of edit mode, or if you are already in Program mode, you can toggle from factory to user Programs by pressing and holding this button.

5. 1-4 Buttons - These buttons will access the parameters shown in the display. Each parameter in the display will have a number next to the parameter. The parameters can be accessed by pressing the button corresponding to the the numbered parameters.

6a. Preamp Button - The Preamp button will provide direct access to the effect modules in the Preamp section of the RP21D. This button will light when you are editing modules in the Preamp section. The modules in the Preamp section include the Compressor, Analog Wah, Tube Distortion, 10 band Graphic EQ for the Tube Distortion, Solid State Distortion, 10 band Graphic EQ for the Solid State Distortion, and Noise Gate. Successive presses of the preamp button will advance to the next effect module in the Preamp section.

6b. Effects Button - The Effects button provides direct access to the effect configurations as well as the individual digital effect modules. This button will light while you are editing effects in the digital section of the RP21D. Successive presses of the Effects button will advance to the next digital effect module in the current configuration.

6c. Utility Button - This button will provide access to the utility functions in the RP21D. This button will light when you are in the Utility menu. Once in the Utility menu, you may use the Previous Page and Next Page buttons to select any of the 15 pages of Utilities. The Utility menu includes Output mode, MIDI functions, System Exclusive dumps, Bank Names, Reinitialization menu, and Expression Pedal Calibration menu.

6d. Previous Page Button - The RP21D may have several "pages" of parameters or menus for a particular section of programming. The Previous Page button will allow you to step backwards through these pages of menus or parameters. Successive presses of the Previous Page button will back step by one page for each press. This button will light when an effect or menu contains more than one page.

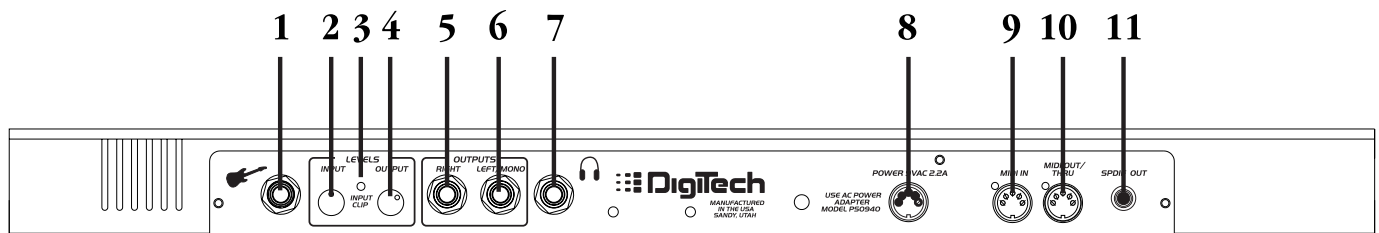
6e. Next Page Button - The RP21D may have several "pages" of parameters or menus for a particular section of programming. The Next page button will allow you to advance forward through the pages or menus. Successive presses of the Next Page button will advance forward by one page for each press. This button will light when an effect or menu contains more than one page.

6f. Assign Button - The Assign button is used to assign Programs, effect on/off functions, or parameters to the expression pedal, footswitches, or MIDI CC's. It is also used for viewing pedalboard assignments, or adjusting minimum/maximum values of assigned parameters. This button will light while in the assignment menu. Making assignments is as easy as selecting the Program or parameter that you wish to assign, pressing the assign button once, and selecting the footswitch or pedal that you wish to use to access the Program or parameter. See page 48 for more on assigning functions to the pedalboard.

7. Data Wheel - This rotary knob is used to scroll through Programs, adjust parameter values, or change the status of any function currently selected in the display.

8. Expression Pedal - The Expression Pedal is used for real time control of parameters during performance. This pedal may control volume in one Program, wah in another Program, morph between the tube and solid state preamp in another Program, or vary the delay time in yet another Program. Individual boundaries may be set up for the minimum and maximum parameter values that will be accessed by the Expression Pedal. See page 49 for more on making expression pedal assignments.

Rear Panel



1. Input Jack - This is where your signal enters the RP21D. Connect from the output of your instrument to this jack.

2. Input Level - This knob adjusts the strength of the signal as it enters the RP21D. Set this level so that the clip LED lights occasionally with strong signals.

3. Clip LED - This LED will light when the input signal is overdriving the input of the RP21D. The Input Level knob should be adjusted in conjunction with watching this LED. The Clip LED should light occasionally with strong signal.

4. Output Level - This knob controls the level of signal coming out of the RP21D.

5. Right Output - This jack should be used for stereo applications. Connect from this output to the input of a second amplifier, or the right input of a stereo power amp.

- 6. Left/Mono Output** - This output should be used for all stereo and mono applications. Connect from this jack to the input of your amplifier, or the left input of a stereo power amp. If the RP21D is to be used in a mono application, set the Output Mode to mono in the utility menu.
- 7. Headphone Output** - This jack delivers a speaker compensated, stereo signal. Connect stereo headphones to this jack. Do not connect a mono jack here as doing so may damage the output driver.
- 8. Power Input** - This connector is used to power the RP21D. Use only the DigiTech PS0940 power supply provided.
- 9. MIDI In** - This jack is used to receive all incoming MIDI data intended to control the RP21D. Connect from this jack to the MIDI out of a sequencer, MIDI controller, or MIDI storage device.
- 10. MIDI Out/Thru** - This jack is used for all MIDI data being sent out of the RP21D. Connect from this jack to the MIDI input of any external MIDI devices that you wish to control. The MIDI Thru function of this jack simply sends out the same information that is received at the MIDI In of the RP21D.
- 11. S/PDIF Output** - This is the digital output from the RP21D. The signal at this output is in a digital format, and is to be connected to a digital S/PDIF input such as those found on digital recorders.

Getting Started

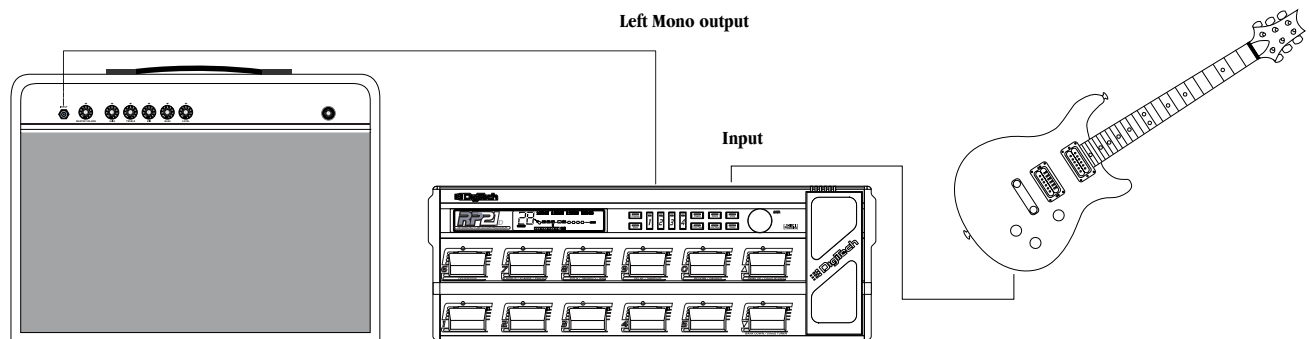
Making Connections

Before connecting the RP21D, make sure that the power to your amplifier is turned off, and that the power to the RP21D is disconnected. There is no power switch on the RP21D. To turn the RP21D on, simply plug the power supply in to an AC outlet. To turn the RP21D off, unplug the power supply from the AC outlet.

There are several different amplification options available when using the RP21D. You may run mono into an amp or power amp, stereo into two amps or a stereo power amp, direct into a mixing console, or a combination of amp(s) and mixing console. The following diagrams show the connections for some of these options.

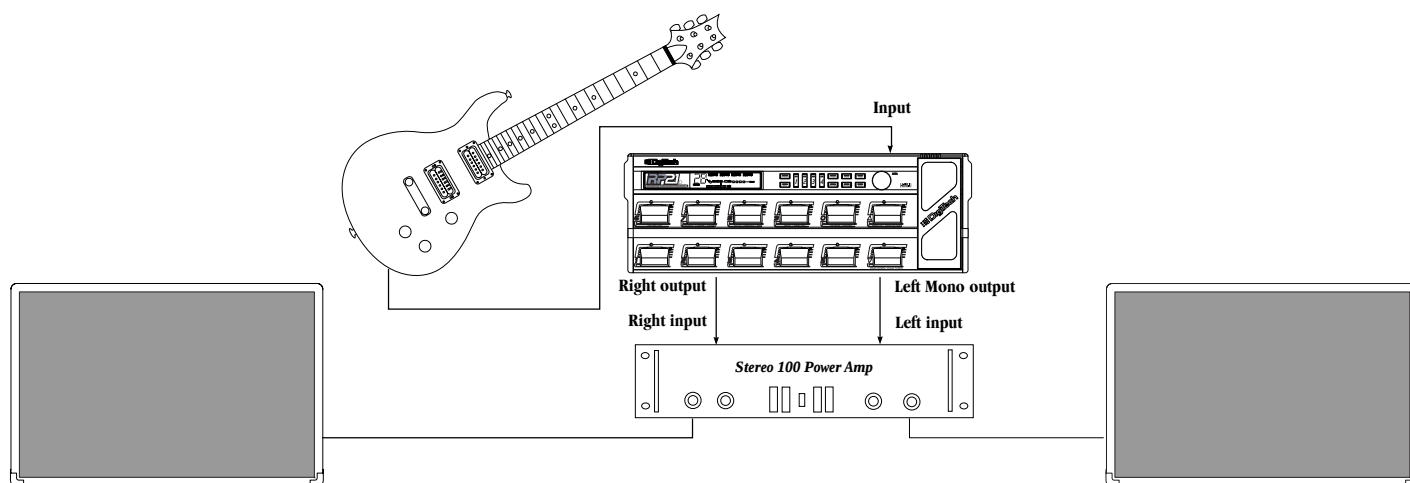
Mono

Connect your guitar to the input of the RP21D. Connect the Left Mono output of the RP21D to the instrument input on your amplifier, or to the line input of a power amp. Set the Output Mode to mono in the utility menu.



Stereo

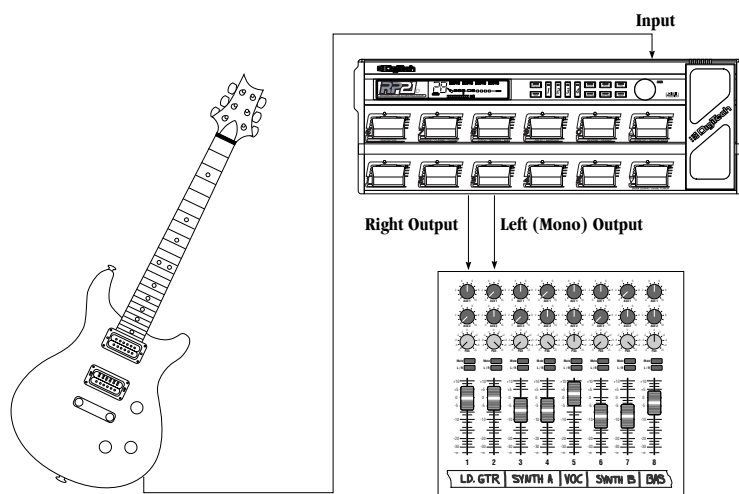
For stereo operation connect the guitar to the input of the RP21D. Connect from the RP21D's Left/Mono output to the input of one amplifier or channel of a power amp. Connect from the Right output of the RP21D to a second amplifier, or to a second channel of a power amp.



NOTE: The RP21D is a preamp. Running The RP21D signal into the input of a combo guitar amplifier will preamplify the signal again adding noise and possibly feedback. When using a guitar amp, it is best to connect the guitar to the input of the RP21D and the output of the RP21D to the effect return of the amplifier.

Direct to a Mixing Console

The RP21D can be connected directly to the inputs of a house PA system, or to a recording console. Connect the guitar to the input of the RP21D, and from the outputs of the RP21D to the channel inputs of the mixing console. Be sure to engage the RP21D's Cabinet Emulator in this application. See page 46 for more on selecting the Cabinet Emulator.



Digital Output

The RP21D includes a digital S/PDIF output enabling you to eliminate multiple analog to digital, and digital to analog conversions when recording digitally. Simply connect from the S/PDIF output of the RP21D to the S/PDIF input on your digital mixer or recorder. The RP21D will deliver a digital signal to your digital mixer or recorder. You must have S/PDIF inputs on the receiving device in order to use this output. You may use the analog and digital outputs of the RP21D simultaneously.

ATTENTION: Do not connect this output to analog auxiliary, CD, phono, or tape inputs on consumer electronic devices. It is not compatible with these inputs.

Powering the RP21D

Once the audio connections have been made, connect the 4 pin connector of the power adapter to the power jack on the back of the RP21D and the other end to an AC outlet. Begin to play your guitar while adjusting the Input Level on the back panel of the RP21D. The Input Level should be adjusted so the clip LED lights occasionally on the strongest peaks of your signal.

At this point, turn the Output Level of the RP21D all the way down (counterclockwise). Then turn the power to your amplifier(s) on. Set the amp(s) to a clean setting and set the tone controls to a flat EQ response (on most amps, this would be 0 or 5 on the tone controls). Turn the Output Level of the RP21D up to achieve the desired volume level.

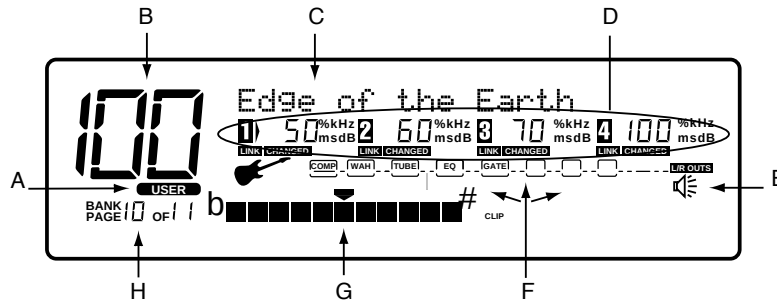
About the RP21D

Program Mode

When you first apply power to the RP21D, it will power up in Program mode. Program mode is indicated when the Program button is lit and is the mode used while you are performing. Using the footswitches while in Program mode allows you to access different Programs, turn effects on and off, access the tuner, bypass all effects, change banks, or adjust the values of any parameters assigned to the expression pedal. Rotating the Data Wheel selects Programs in the Program mode.

The Display

Understanding what the RP21D's display is telling you is crucial to getting the most out of what the RP21D has to offer. There are several different sections to the display, and each section is telling you what the RP21D is currently doing, or listing options to alter the current sound.



- A. Factory/User Icon** - This section of the display tells you whether you are currently using a factory Program, or a user Program. Pressing and holding the Program button for 2 seconds will switch between the factory and user Programs.
- B. Program Number** - In Program mode, this section of the display will show the number of the currently selected Program. In tuner mode, this section of the display will show the name of the note that you are tuning.
- C. Program Name** - This line of the display will show the name of the Program currently active.
- D. Parameter Values** - This section of the display will appear when you are editing a Program. Each of the 4 sections represent an effect parameter and the value of that parameter. Accessing any of these 4 parameters is done with the 1-4 buttons to the right of the display. Once the parameter has been accessed, the value may be adjusted with the Data Wheel.
- E. Speaker Icon** - This icon is displayed when the speaker simulator is active in the Program.
- F. Signal Flow** - This section of the display shows the order of the effect modules and the configuration being used in the digital section of the RP21D. Each box represents a separate effect. A bypassed effect will be indicated by a horizontal line going through the effect box.
- G. Input Signal/Tuner** - This section of the display will show the strength of the input signal to the Effects section. This section of the display also functions as a tuning indicator. While in the tuner mode, the Program number will show the note you are tuning, and this line will provide indications as to whether you are sharp, flat, or in tune.
- H. Bank/Page Number** - This section of the display will show the Bank number that is currently active when you are in Program mode. While in edit mode, this section will show how many pages of parameters are associated with a particular editing function, and which page you are currently on.

The Programs

Programs are named and numbered locations of sounds that have been programmed into the RP21D. Programs can be recalled with the footswitches or the Data Wheel. The RP21D comes with 128 factory and 128 user Programs available. The factory Programs will not allow you to store any changes to them. The user Programs are locations where your creations may be stored. You will notice that the 128 user Programs are exact duplicates of the 128 factory Programs. This allows you to make your own Programs without worrying about losing any of the sounds that the RP21D came with.

When you select a Program, the name and number of the Program will be shown in the display. An icon directly beneath the number of the Program will indicate whether the Program is a factory Program or a user Program. Depending on whether or not you have changed any footswitch assignments, the top row of footswitches may have one or more LEDs lit, indicating the status of the effects assigned to those switches.

The RP21D includes a variety of different Programs. Go ahead and audition several of the Programs. Once you have found some sounds that are close to what you are looking for, you can edit those Programs until they are exactly what you want.

The Footswitches

The RP21D includes 12 footswitches which can be assigned to perform different functions. The footswitches can call up Programs, turn effects on or off within a Program, change banks, bypass the Program, or access the tuner. Other functions can also be performed with the footswitches such as setting up a delay time by tapping your foot on a switch in time with the tempo of a song. You can also use the footswitches to change a parameter to a specific value.

From the factory, the footswitches have been set up to call up Programs with the bottom row (switches 1-5), and turn effects on and off with the top row (switches 6-0). You may change assignments to any of these ten switches to suit your needs. For more on assigning the switches, see page 48. The top and bottom switches on the far right (next to the expression pedal) cannot be reassigned. These switches are permanently assigned to advance banks with the top switch, or decrement banks with the bottom switch. The top right switch will also bypass the current Program by pressing and holding the switch. The bottom right switch will access the tuner by pressing and holding the switch.

The Expression Pedal

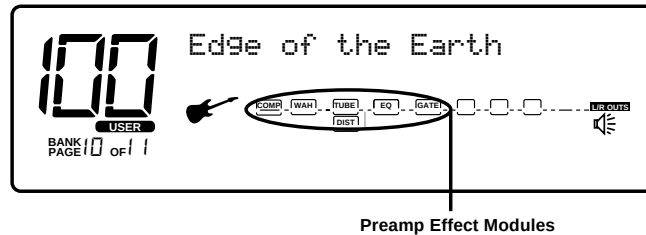
As you go through the different Programs that came in the RP21D, you will find that the expression pedal has different functions. This pedal can be assigned to control any parameter of any effect in the RP21D. Rocking the pedal back and forth will change the value of the parameter that the pedal has been assigned to control. You may assign minimum and maximum values (stop points) for each parameter that you control with the pedal. For more on assigning the expression pedal, see page 49.

The Effects

Creating your own signature sound with the RP21D is easy and intuitive. The RP21D is divided into two sections of effect modules: the analog or preamp modules, and the digital effect modules. Each section may be accessed individually for the purpose of modifying the available effect modules.

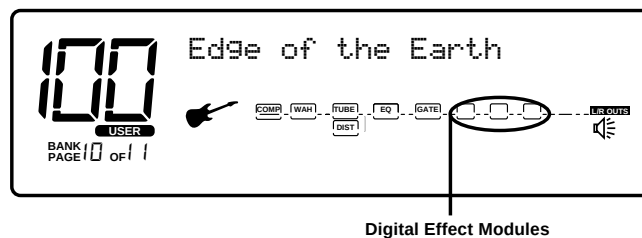
Preamp/Analog Modules

Access to all of the preamp modules is accomplished by pressing the Preamp button. Once pressed, an effect module in the preamp section of the display will begin to flash indicating which module you have accessed. Successive presses of the Preamp button will advance to the next module in the preamp section. Each module will have various parameters available for editing. Each parameter will be preceded by a highlighted number between 1 and 4. Use of the 1-4 buttons will select the corresponding numbered parameter. There may be more than one page of parameters associated with the effect module. This will be indicated by the Next and Previous Page buttons being lit. The bottom left corner of the display will show which page you are on, and how many pages are associated with that effect. When you have selected the parameter to be edited, rotating the Data Wheel will change the value of the parameter. You will be able to hear your changes in real time.



Digital Effects Modules

Access to all of the digital effects modules is accomplished by pressing the Effect button. The first press of the Effect button will take you to the configuration menu of the digital section. The RP21D includes 15 different configuration to choose from. Each configuration will change the signal routing through the digital effects, the number of effect modules, and the processing power available to each of the effect modules. Every time that you change configurations, you will start out with a “blank slate” of digital effect modules. In other words, changing the configuration will cause all digital effect modules to default to “thru modules,” meaning that you will have to choose the effect for each module. Once you have selected the desired configuration, press the Effects button again and the first module in the selected configuration will begin to flash indicating which module you are about to edit. Successive presses of the Effects button will advance to the next module in the digital section of the RP21D. After you have selected the module that you wish to edit, use the 1-4 buttons to select the parameter that you want to modify. There may be more than one page of parameters associated with the effect module. This will be indicated by the Next and Previous Page buttons being lit. The Bank/Page section of the display will show which page you are on, and how many pages are available. When you have selected the parameter to be edited, rotate the Data Wheel to change the value of the parameter. You will be able to hear your changes in real time.



Section Two - Editing Functions

Selecting a Program

When creating or editing a sound, you must first start by choosing a Program. The Program number does not necessarily need to be the location which you intend to have the sound reside, as you can save your creation to any user Program number during the store process. You do have to start with one of the user or factory Programs. It is not possible to start with a completely empty Program. Pick a Program which will be your starting point.

Creating Programs

The RP21D lets you create your own Programs, or fine tune the original settings to suit your needs. Editing and creating is a very simple process that doesn't require a lot of time dedicated to learning the menus. Once a Program has been edited to your liking, you may store those settings to any of the 128 user Programs. Remember that the user Programs are duplicates of the factory Programs so, you are not at risk of losing any of the sounds that the RP21D came with.

Preamplifier Defaults

Once you have selected the Program, press the Preamp button once. All of the modules in the Preamp section will begin flashing in the display. This is the default page of the Preamp. A default is a way of quickly getting several effects and/or parameters set up without having to Program each one individually. It remembers the settings of all of the preamp effect modules and will set all parameters to the values stored in the default. There are 30 factory and 30 user preamp defaults in the RP21D. You can choose one of the factory preamp defaults that suits your needs, or tailor your basic sound to get a custom preamp tone that you will want to use for several other Programs. You can then store your custom default to a user default location. Then when you create a new Program in which you wish to use that same preamp tone, all you have to do is select the same default setting. This saves you the time and hassle of reprogramming the preamp every time you create a Program.

Editing the Preamp

Let's suppose that you are not going to use a default for the preamp, or that you are going to create a custom default setting. This means that you will need to edit all the effects in the preamp individually. To access the effects within the preamp, press the preamp button twice. The Compressor box will begin to flash indicating that you are about to edit the compressor module. Successive presses of the preamp button will advance through all of the effect modules in the preamp section. Once you reach the end of the preamp modules, the RP21D will "loop around" and start at the beginning again. Every module will have parameters associated with that effect available for editing. These parameters will be shown in the 1-4 positions of the display. To adjust any of these parameters, press any of the 1-4 buttons and an arrow will appear next to the corresponding parameter. Rotate the Data Wheel to change the value of that parameter.

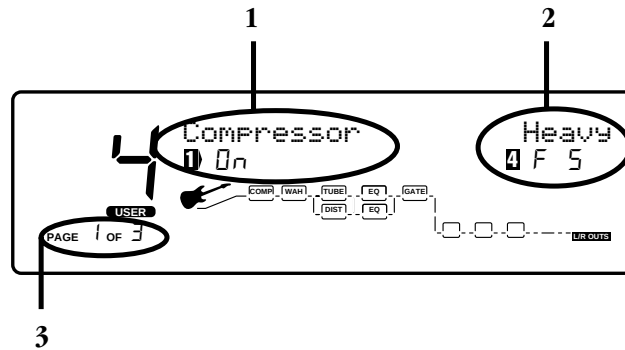
When the preamp has been edited to suit your requirements, you may store the settings to a user default for use in other Programs, or move on to editing your digital effects within the current Program.

The Preamp Effects

The preamp contains a total of 7 different effects. The effects were laid out in the most logical and best sounding order and cannot be changed. The guitar signal can go through any or all of the modules. The first effect that your guitar goes through is the compressor. The output of the compressor is then fed to the Wah. After the Wah effect, the signal can be split and run through two discrete Distortion paths. Each Distortion path has a dedicated Equalizer. The expression pedal can be assigned to morph between the two Distortion paths (see page 50 for more information on morphing). The outputs of the Equalizers are sent into a Noise Gate which is the end of the Preamp effect modules. Each effect in the preamp (except for the Wah) includes a default menu exclusive to that effect.

Compressor

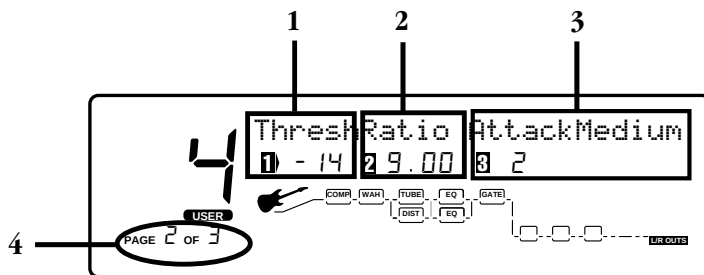
Compression is a tool that sets boundaries for the strength of your guitars signal. A bi-product of containing a signal within these boundaries is long lasting sustain, as well as a tight, smooth texture. Selecting the Compressor is done by pressing the Preamp button until the Compressor module is flashing in the display. The display will look something like this:



The display will show three things about the Compressor.

1. This is showing that the type of effect you are about to edit is a Compressor, and that the effect is on. The number 1 icon before the word "on" indicates that in order to access the on/off parameter, you need to press the number 1 button. The status can then be changed by rotating the Data Wheel.
2. This is the default setting for the Compressor. The Compressor default shown here is factory default 5 (F5) which is a heavy Compression setting. The number 4 which precedes the F5 value, indicates that in order to access the default parameter, you must press the number 4 button. The default can then be changed by rotating the Data Wheel. See page 22 for a complete list of defaults.
3. The bottom corner of the display is showing that there are 3 pages of parameters associated with the Compressor, and that you are on the first of these three pages. The next and previous page button can be used to access the other pages of parameters associated with the Compressor.

When you access page two of the compression parameters, the display will look something like this:

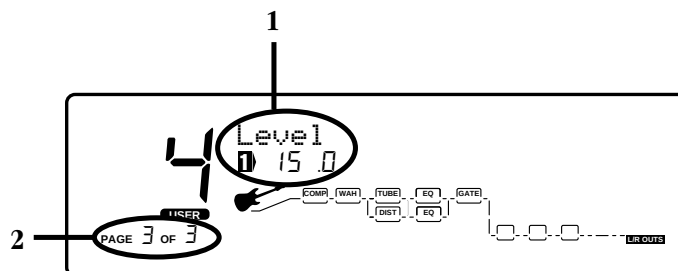


The display it now telling you four more things about the Compressor parameters

1. This is the Compressors Threshold parameter. The Threshold is the strength the incoming signal must be before the compression will start. A signal above this level will be compressed, a signal below this level will not. The number 1 icon is telling you that in order to access the Threshold parameter, you must press the number 1 button. Then you can adjust the Threshold value by rotating the Data Wheel.
2. This is the Compressors Ratio parameter. The Ratio is the amount of compression that will be applied to the signal once the Threshold has been exceeded. In the display shown above, the Ratio is 9 to 1 (the 1 is implied). A Ratio of 9 to 1 means that for every 9 dB of incoming signal, there will only be a 1 dB increase in output. The number 2 icon is telling you that in order to access the Ratio parameter, you must press the number 2 button. Then you can adjust the Ratio value by rotating the Data Wheel.

3. This is the Compressors Attack Time parameter. The Attack Time parameter adjusts the length of time that it takes the compressor to reach the full Ratio once the Threshold has been exceeded. The number 3 icon is telling you that in order to access the Attack Time parameter, you must press the number 3 button. Then you can adjust the Attack Time value by rotating the Data Wheel.
4. This section of the display is telling you that there are three pages of Compression parameters, and that you are currently on the second page. Pressing the Next Page button will advance you to the third page of Compression parameters.

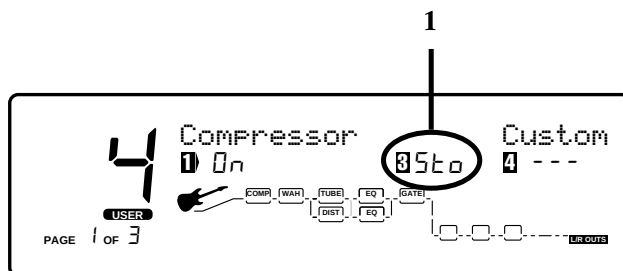
Once you access the third page of Compression parameters the display will look something like this:



There are now two things that the display is telling you:

1. This is the Compressors Output Level parameter. Since there are no other parameters on this page, you do not need to press any buttons to access the parameter. The number 1 button will default as the selected parameter. You can use the Data Wheel to adjust the Compressors Output Level.
2. This section of the display is telling you that you are on page 3 of 3. There are no more pages of parameters to display. Pressing the Next Page button will wrap around to page 1 of 3.

If you made any changes to the Compressor's parameters, you can save your changes to a user default for the Compressor. This will allow you to quickly recall all of these Compression settings when creating another Program just by choosing the user default. To save your Compression settings to a user default, you will have to return to page 1 of 3, and the display will look something like this:

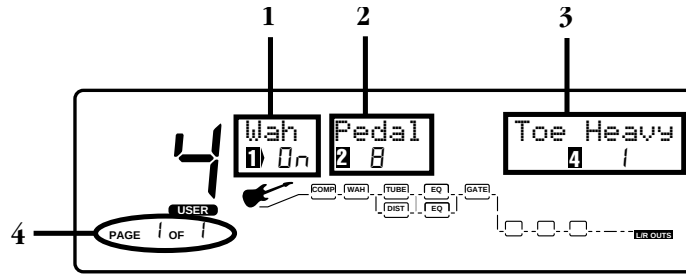


The number 3 icon is telling you that in order to store your Compressor settings to a default, you must press the number 3 button. Once you press the number 3 button, the RP21D will take you into a naming menu to give your compressor default setting a custom name. See page 21 for more information on naming functions.

NOTE: The Store option for saving a Compressor default will not appear if you did not make any changes to the compressors parameters.

Wah Wah

The RP21D includes an analog Wah effect which can be assigned to the expression pedal and controlled just like a stand alone Wah pedal. You access the Wah by pressing the Preamp button until the Wah module in the display is flashing. With the Wah module flashing, the display will look something like this:

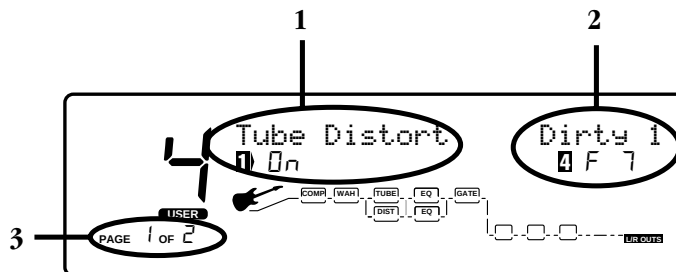


The display is now telling you 4 things about the Wah effect:

1. This is the Wah on/off parameter. The number 1 icon is telling you that in order to access the on/off parameter, you must press the number 1 button. Then you can turn the Wah effect on or off by rotating the Data Wheel.
2. This is the Wah Pedal Position parameter. The number 2 icon is telling you that in order to access the Pedal Position parameter, you must press the number 2 button. Then you can assign the wah effect to the Expression Pedal by pressing Assign once, and rocking the Pedal back and forth once.
3. This parameter is the Wah Type. The number 4 icon is telling you that in order to access the Wah curve response, you must press the number 4 button. Then you can select the different curves of Wah by rotating the Data Wheel.
4. This section of the display is telling you that there is only one page of Wah parameters. Pressing the Next Page button will have no affect.

Tube Distortion

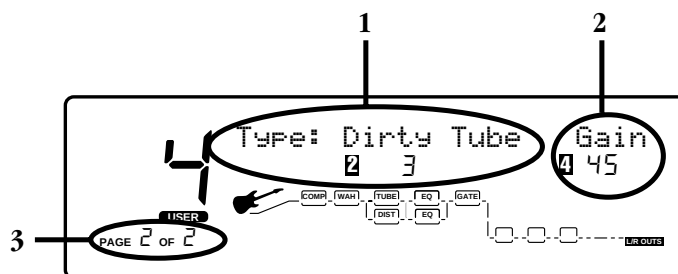
The RP21D contains a real 12AX7 tube capable of creating a wide variety of clean and distorted tones. The flexibility of the distortions created by the tube are entirely up to you, and the way you set the distortion up. To access the Tube Distortion module, press the Preamp button until the Tube module is flashing. The display will look something like this:



The display is now telling you three things about the Tube Distortion parameters:

1. This is showing that the type of effect you are about to edit is Tube Distortion, and that the effect is on. The number 1 icon before the word "on" indicates that in order to access the on/off parameter, you must press the number 1 button. The status can then be changed by rotating the Data Wheel.
2. This is the default setting for the Tube Distortion. The Tube Distortion default shown here is factory default 7 (F7) which is a Dirty Distortion setting. The number 4 icon which precedes the F7 value, indicates that in order to access the default parameter, you must press the number 4 button. The default can then be changed by rotating the Data Wheel. See page 22 for a complete list of defaults
3. The bottom corner of the display is showing that there are 2 pages of parameters associated with the Tube Distortion, and that you are on the first of these two pages. The Next or Previous Page buttons can be used to access page 2 of the Tube Distortion parameters.

Once you have accessed page 2 of the Tube Distortion, the display will look something like this:

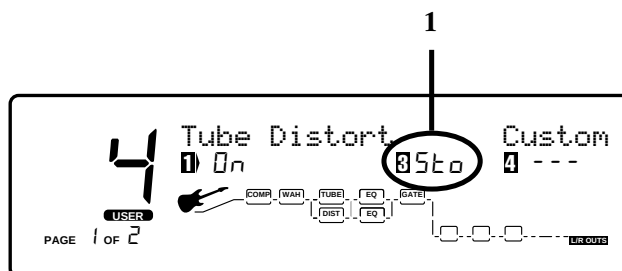


The display is now telling you three more things about the Tube Distortion parameters.

1. This parameter is the Tube Distortion Type. There are four types of Tube Distortion to choose from including Warm Clean, Bright Clean, Dirty Tube, and Saturated Tube. The number 2 icon is telling you that in order to access the Tube Distortion Type, you must press the number 2 button. You can then select the Type of Tube Distortion by rotating the Data Wheel.
2. This is the Tube Distortion Gain parameter. The Gain is the amount of distortion and is adjustable from 0 to 100. The number 4 icon is telling you that in order to access the Gain parameter, you must press the number 4 button. You can then change the Tube Distortion Gain value by rotating the Data Wheel.
3. This section of the display is telling you that you are on page 2 of 2. There are no more pages of parameters to display. Pressing the Next Page button will wrap around to page 1 of 2.

Saving a Distortion Default

If you made any changes to the Tube Distortion parameters, you can save your changes to a user default for the Tube Distortion. This will allow you to quickly recall all of these Distortion settings when creating another Program just by choosing the user default. To save your Tube Distortion settings to a user default, you will have to return to page 1 of 2, and the display will look something like this:

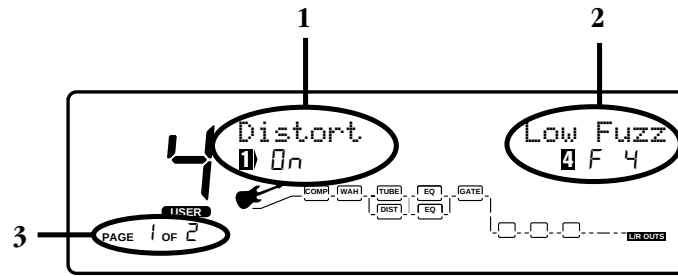


The number 3 icon is telling you that in order to store your Tube Distortion settings to a default, you must press the number 3 button. Once you press the number 3 button, the RP21D will take you into a naming menu to give your Tube Distortion default setting a custom name. See page 21 for more information on naming functions.

NOTE: The Store option for saving a Tube Distortion default will not appear if you did not make any changes to the Tube Distortion parameters.

Solid State Distortion

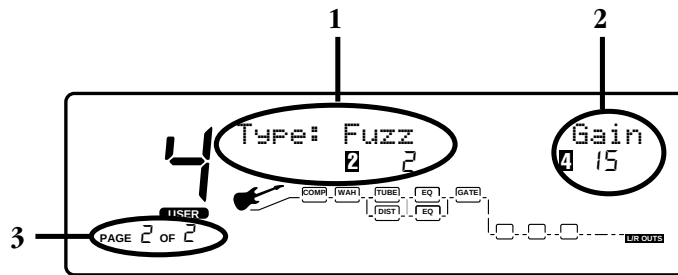
In addition to the Tube Distortion, the RP21D also includes a solid state Distortion. Both the tube and solid state Distortions may be run simultaneously or separately. Each Distortion has a separate 10 band Equalizer. To access the solid state Distortion module, press the Preamp button until the Dist module is flashing. The display will look something like this:



The display is now telling you three things about the Distortion parameters:

1. This is showing that the type of effect you are about to edit is Distortion, and that the effect is on. The number 1 icon before the word “on” indicates that in order to access the on/off parameter, you must press the number 1 button. The status can then be changed by rotating the Data Wheel.
2. This is the default setting for the Distortion. The Distortion default shown here is factory default 4 (F4) which is a Low Fuzz Distortion setting. The number 4 icon which precedes the F4 value, indicates that in order to access the default parameter, you must press the number 4 button. The default can then be changed by rotating the Data Wheel. See page 22 for a complete list of defaults.
3. The bottom corner of the display is showing that there are 2 pages of parameters associated with the Distortion, and that you are on the first of these two pages. The Next or Previous Page buttons can be used to access page 2 of the Distortion parameters.

Once you have accessed page 2 of the Distortion, the display will look something like this:



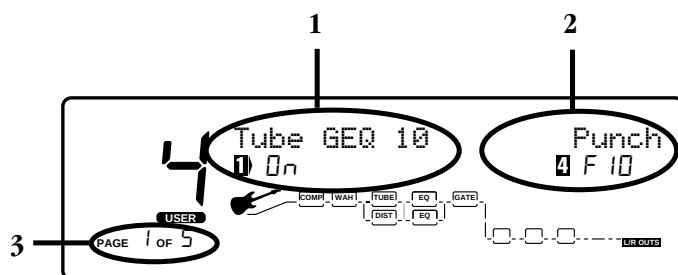
The display is now telling you three more things about the Tube Distortion parameters.

1. This parameter is the Distortion Type. There are four types of Distortion including Grunge, Fuzz, Overdrive, and Heavy Sustain. The number 2 icon is telling you that in order to access the Distortion Type, you must press the number 2 button. You can then select the Type of Distortion by rotating the Data Wheel.
2. This is the Distortion Gain parameter. The Gain is the amount of distortion and is adjustable from 0 to 100. The number 4 icon is telling you that in order to access the Gain parameter, you must press the number 4 button. You can then change the Distortion Gain value by rotating the Data Wheel.
3. This section of the display is telling you that you are on page 2 of 2. There are no more pages of parameters to display. Pressing the Next Page button will wrap around to page 1 of 2.

If you made any changes to the Distortion parameters, you can save your changes to a user default for the Distortion. This will allow you to quickly recall all of these Distortion settings when creating another Program just by choosing the user default. See the previous section for instructions on saving a Distortion default.

10 Band Graphic Equalizer

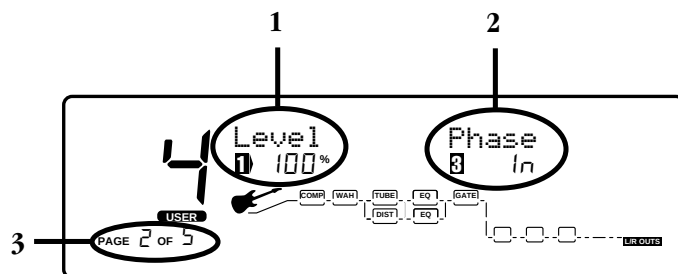
The RP21D includes two 10 band Graphic Equalizers in the preamp section, one for each of the distortion paths. To access either one of the Graphic Equalizer modules, press the Preamp button until the desired EQ module is flashing. The display will look something like this:



The display is now telling you three things about the Graphic EQ module:

1. This is showing that the type of effect you are about to edit is the 10 Band Graphic EQ, and that the effect is on. The number 1 icon before the word “on” indicates that in order to access the on/off parameter, you must press the number 1 button. The status can then be changed by rotating the Data Wheel.
2. This is the default setting for the Graphic EQ. The default shown here is factory default 10 (F10) which is a Punch setting. The number 4 icon which precedes the F10 value, indicates that in order to access the default parameter, you must press the number 4 button. The default can then be changed by rotating the Data Wheel. See page 22 for a complete list of defaults.
3. The bottom corner of the display is showing that there are 5 pages of parameters associated with the Graphic EQ, and that you are on the first of these five pages. The Next button can be used to access page 2 of the Graphic EQ parameters.

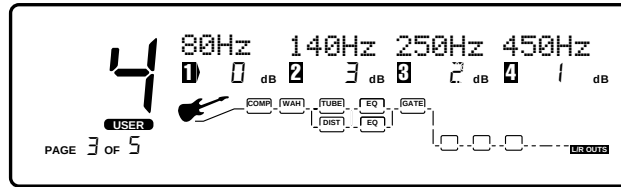
Once you have accessed page 2 of the Graphic EQ, the display will look something like this:



The display is now telling you three more things about the Graphic EQ parameters.

1. This parameter is the volume Level of the Graphic EQ. The number 1 icon is telling you that in order to access the Graphic EQ Level, you must press the number 1 button. You can then adjust the Level by rotating the Data Wheel.
2. This is the Phase parameter of the Graphic EQ. The phase options are in phase and 180 degrees out of phase. The number 3 icon is telling you that in order to access the Phase parameter, you must press the number 3 button. You can then change the Phase by rotating the Data Wheel.
3. This section of the display is telling you that there are 5 pages of EQ parameters, and that you are currently on the second page. Pressing the Next Page button will advance you to the third page of EQ parameters.

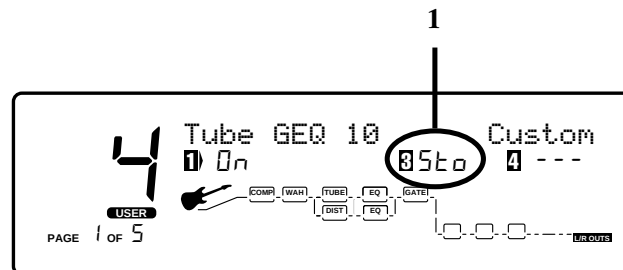
Pages 3, 4, and 5 of the Graphic EQ are all similar, each displaying the center frequencies available. Pages 3, 4, and 5 will look something like this:



As in all other editing functions, the display is telling you that each parameter shown is accessible by using the 1-4 buttons which will select the frequency corresponding to the 1-4 icons in the display. Once the frequency has been selected, rotating the Data Wheel will boost or cut the gain applied to that frequency. The 10 Band Graphic EQ on the RP21D can be compared to having 10 tone knobs on an amplifier. Each one adjusts a specific segment of the spectrum of frequencies that a guitar generates. The following list outlines the tonal range that each frequency represents.

80 Hz	Low Bass Frequency	1.5 kHz	High Mid Range Frequency
140 Hz	Mid Bass Frequency	2.5 kHz	Low Treble Frequency
250 Hz	High Bass Frequency	4.5 kHz	Mid Treble Frequency
450 Hz	Low Mid Range Frequency	8 kHz	High Treble Frequency
800 Hz	Mid Range Frequency	15 kHz	Highest Treble Frequency

If you made any changes to the Graphic EQ parameters, you can save your changes to a user default for the Graphic EQ. This will allow you to quickly recall all of these Equalizer settings when creating another Program just by choosing the user default. To save your Graphic EQ settings to a user default, you will have to return to page 1 of 5, and the display will look something like this:

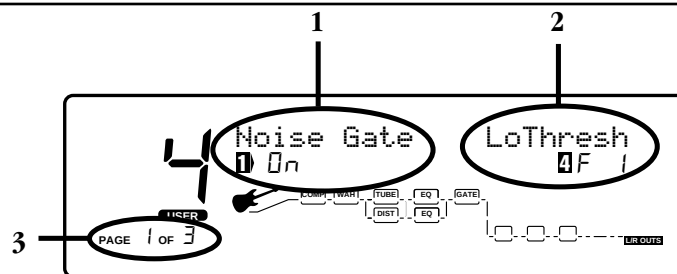


The number 3 icon is telling you that in order to store your EQ settings to a default, you must press the number 3 button. Once you press the number 3 button, the RP21D will take you into a naming menu to give your EQ default setting a custom name. See page 21 for more information on naming functions.

NOTE: The Store option for saving an EQ default will not appear if you did not make any changes to the EQ parameters.

Noise Gate

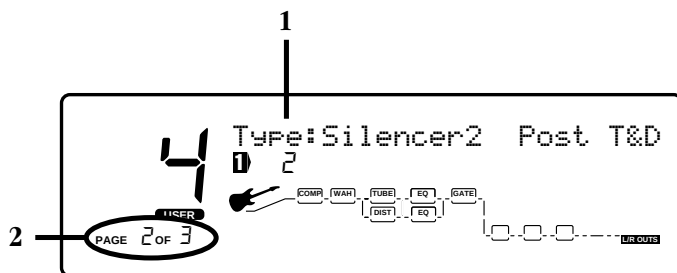
A noise gate is an effect which prevents background noise from being heard while you are not playing. A noise gate has a threshold setting which determines the strength or volume of the incoming signal required to open or close the gate. When your signal exceeds the threshold, the gate will open allowing sound to be heard. When your signal falls below the threshold, the gate closes allowing nothing to come through. The ideal setting for the threshold is to have it open as soon as you strike a string, and close when you stop playing. To access the Noise Gate parameters, press the Preamp button until the Gate box is flashing. The display will look something like this:



The Display is now telling you three things about the Noise Gate

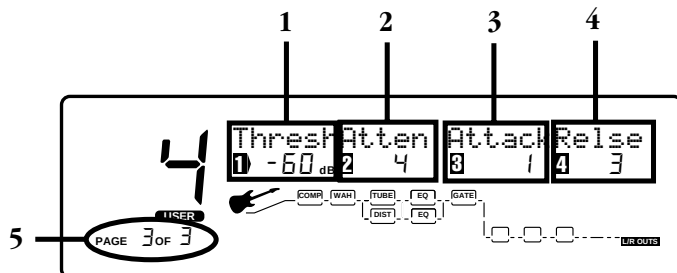
1. This is showing that the type of effect you are about to edit is the Noise Gate, and that the effect is on. The number 1 icon before the word “on” indicates that in order to access the on/off parameter, you must press the number 1 button. The status can then be changed by rotating the Data Wheel.
2. This is the default setting for the Noise Gate. The Noise Gate default shown here is factory default 1 (F1) which is a Low Threshold setting. The number 4 icon which precedes the F1 value, indicates that in order to access the default parameter, you must press the number 4 button. The default can then be changed by rotating the Data Wheel. See page 22 for a complete list of defaults.
3. The bottom corner of the display is showing that there are 3 pages of parameters associated with the Noise Gate, and that you are on the first of these three pages. The Next Page button can be used to access page 2 of the Noise Gate parameters.

Once you have accessed page 2 of the Noise Gate, the display will look something like this:



1. This is the type of Noise Gate that you are going to use. You have two choices of Noise Gate types. The different types are basically changing the placement of the Gate in the signal path. Silencer 1 puts the Noise Gate detector at the input of the RP21D before the signal enters the Preamp. Silencer 2 places the gate detector at the end of the Preamp after the Preamp modules. Silencer 2 is also more sensitive to the signal that is present, and not as likely to shut while you are playing. Press the number one button and rotate the Data Wheel to change the type of Gate.
2. This section of the display is showing that there are 3 pages of parameters associated with the Noise Gate, and that you are on the second of these three pages. The Next Page button can be used to access page 3 of the Noise Gate parameters.

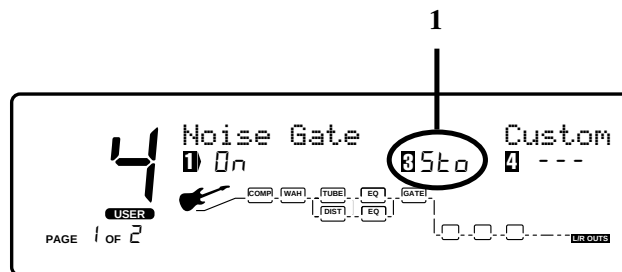
After you have accessed the third page of the Noise Gate parameters, the display will look something like this:



The display it now telling you five more things about the Noise Gate parameters.

1. This parameter is the Gate Threshold which adjusts the signal strength required to open or close the gate. The number 1 icon is telling you that in order to access the Gate Threshold, you must press the number 1 button. You can then adjust the Gate Threshold by rotating the Data Wheel.
2. This is the Attenuation parameter. Attenuation is the amount of cut applied to the signal when the Gate is closed. The number 2 icon is telling you that in order to access the Attenuation parameter, you must press the number 2 button. You can then change the Attenuation value by rotating the Data Wheel.
3. This is the Attack parameter. The Attack sets the length of time it takes for the gate to open once the Threshold has been exceeded. The number 3 icon is telling you that in order to access the Attack parameter, you must press the number 3 button. You can then change the Attack value by rotating the Data Wheel.
4. This is the Release parameter. The Release is the length of time the gate will remain open after the signal has fallen below the Threshold. The number 4 icon is telling you that in order to access the Release parameter, you must press the number 4 button. You can then change the Release value by rotating the Data Wheel.
5. This section of the display is telling you that you are on page 3 of 3. There are no more pages of parameters to display. Pressing the Next Page button will wrap around to page 1 of 3.

If you made any changes to the Noise Gate parameters, you can save your changes to a user default for the Noise Gate. This will allow you to quickly recall all of these Noise Gate settings when creating another Program just by choosing the user default. To save your Noise Gate settings to a user default, you will have to return to page 1 of 2, and the display will look something like this:

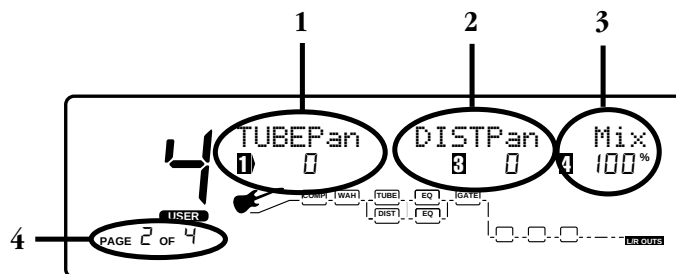


The number 3 icon is telling you that in order to store your Noise Gate settings to a default, you must press the number 3 button. Once you press the number 3 button, the RP21D will take you into a naming menu to give your Noise Gate default setting a custom name. See page 21 for more information on naming functions.

NOTE: The Store option for saving a Noise Gate default will not appear if you did not make any changes to the Noise Gate parameters.

Master Preamp Settings

The Preamp includes some master settings that affect the function of the preamp as a whole. These setting include such parameters as panning assignments for the Tube and Solid State Distortions, Mix settings, and independent volume levels for the active Distortions, bypassed Distortions, DSP Levels, and Master Levels. To access the Master Preamp Settings, press the Preamp button until the entire Preamp section is flashing. Then press the Next Page button until you are on page two. The Display looks something like this:

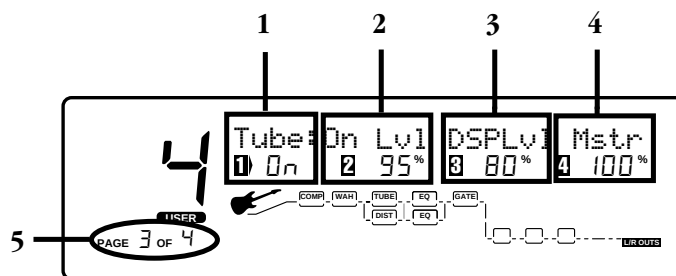


The display it now telling you four more things about the Master Preamp parameters.

1. This parameter is the Tube Distortion Pan. The pan is the left/right positioning of the Tube distortion. The number 1 icon is telling you that in order to access the Tube Distortion Pan, you must press the number 1 button. You can then adjust the Pan of the Tube Distortion by rotating the Data Wheel.

2. This parameter is the Distortion Pan. The pan is the left/right positioning of the Distortion. The number 2 icon is telling you that in order to access the Distortion Pan, you must press the number 2 button. You can then adjust the Pan of the Distortion by rotating the Data Wheel.
3. This is the Mix parameter. It controls the overall strength of signal being fed into the digital effects from both distortion paths. The number 4 icon indicates that in order to access the mix parameter, you must press the number 4 button. The mix parameter can then be adjusted by rotating the Data Wheel.
4. This section of the display is telling you that there are four pages of Preamp parameters, and that you are currently on the second page. Pressing the Next Page button will advance you to the third page of Preamp parameters.

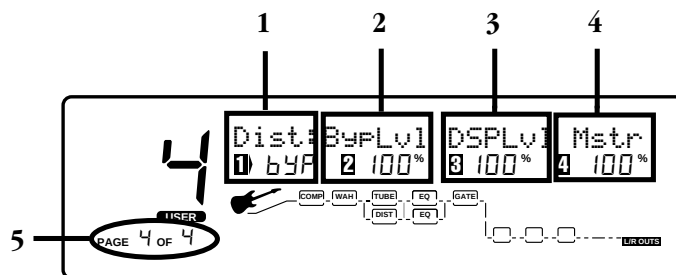
Once you have accessed page 3 of the Preamp, the display will look something like this:



The display it now telling you five more things about the Preamp parameters.

1. This parameter is telling you that you are editing the parameters of the Tube distortion when it is on. You can also edit the bypassed parameters of the Tube distortion. The number 1 icon is telling you that in order to access the status of editable Tube Distortion parameters, you must press the number 1 button. You can then select the bypassed Tube Distortion parameters by rotating the Data Wheel.
2. This is the Volume Level of the Tube Distortion. This parameter should be adjusted while watching the bar graph in the bottom of the display. Use this parameter to prevent clipping from occurring. The number 2 icon is telling you that in order to access the Volume Level, you must press the number 2 button. You can then change the Level value by rotating the Data Wheel.
3. This is the Volume Level of the Tube Distortion signal being fed into the digital section of the RP21D. Use this parameter to prevent digital clipping from occurring. The number 3 icon is telling you that in order to access the Digital Level, you must press the number 3 button. You can then change the Digital Level value by rotating the Data Wheel.
4. This is the combined Master Volume Level of the Program. Should digital clipping occur while using the Digital output, reduce this parameter. The number 4 icon is telling you that in order to access the Master Level, you must press the number 4 button. You can then change the Master Level value by rotating the Data Wheel.
5. This section of the display is telling you that there are four pages of Preamp parameters, and that you are currently on the third page. Pressing the Next Page button will advance you to the fourth page of Preamp parameters.

Once you have accessed page 4 of the Preamp parameters, the display will look something like this:



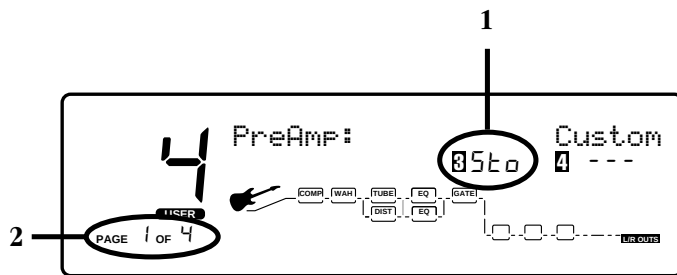
The display it now telling you five more things about the Preamp parameters.

1. This parameter is telling you that you are editing the parameters of the Distortion when it is bypassed. You can also edit the on parameters of the Distortion. The number 1 icon is telling you that in order to access the status of editable Distortion parameters, you must press the number 1 button. You can then select the on Distortion parameters by rotating the Data Wheel.
2. This is the Volume Level of the Distortion. This parameter should be adjusted while watching the bar graph in the bottom of the display. Use this parameter to prevent clipping from occurring. The number 2 icon is telling you that in order to access the Volume Level, you must press the number 2 button. You can then change the Level value by rotating the Data Wheel.
3. This is the Volume Level of the Distortion signal being fed into the digital section of the RP21D. Use this parameter to prevent digital clipping from occurring. The number 3 icon is telling you that in order to access the Digital Level, you must press the number 3 button. You can then change the Digital Level value by rotating the Data Wheel.
4. This is the combined Master Volume Level of the Program. Should digital clipping occur while using the Digital output, reduce this parameter. The number 4 icon is telling you that in order to access the Master Level, you must press the number 4 button. You can then change the Master Level value by rotating the Data Wheel.
5. This section of the display is telling you that you are on page 4 of 4. There are no more pages of parameters to display. Pressing the Next Page button will wrap around to page 1 of 4.

Storing a User Preamp Default

You have now reached the end of the Preamp Effects. You can now save your settings of all the Preamp Effects to a Preamp Default. That way you can quickly recall all of these settings in another Program without having to reProgram each individual Preamp Effect.

To store your preamp settings to a User Default, press the preamp button until the entire preamp section is flashing. The display will look something like this:

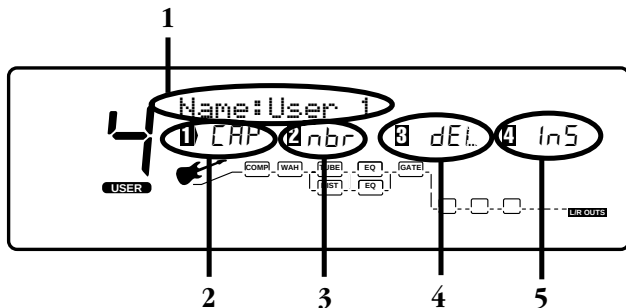


The Display is now telling you two things about the Preamp Section.

1. The number 3 icon is telling you have made changes in the Preamp modules and that in order to store your Preamp settings to a default, you must press the number 3 button. Once you press the number 3 button, the RP21D will take you into a naming menu to give your Preamp default settings a custom name. See the following section for more information on naming functions.
2. The bottom corner of the display is showing that there are 4 pages of parameters associated with the Preamp section, and that you are on the first of these two pages. The Next Page buttons can be used to access page 2 of the Preamp section.

Naming a Default

Every user default can be given a name that you choose. After you have chosen to store a custom default by pressing the number three button from the default page, the RP21D will take you into a naming mode. The display will look something like this:



The display is now showing you 5 things that pertain to naming a default.

1. This is the current name of the default. There will be a cursor under one of the characters of the name. This indicates which character has been selected. Rotating the Data Wheel will change the character. The next and previous page buttons will move the cursor right or left.
2. The number 1 icon is indicating that pressing the number 1 button will select a letter, change from upper case to lower case, or lower case to upper case.
3. The number 2 icon is indicating that pressing the number 2 button will select a number.
4. The number 3 icon is indicating that pressing the number 3 button will select the delete function and will delete the characters to the left.
5. The number 4 icon is indicating that pressing the number 4 button will select insert and shift the characters to the right.

After your custom default name is showing in the display, press the Store button once. The display will ask which one of the user defaults you wish to store the name and settings to. Use the Data Wheel to make your selection. Press the store button again, and the Display will ask which of the User Programs you wish to store the settings to. Use the Data Wheel to make your selection. Once you have selected the Program number that you want to store the settings to, press the Store button again. Your User Preamp Default has been saved. To abort the naming function, press the Program button.

Default List

The Following is a list of Factory Preamp Defaults:

Preamp Module Defaults

Preamp

- F1 - Bright Rhythm
- F2 - Blues Lead
- F3 - Rockit Man
- F4 - Clean Combo 1
- F5 - Clean Combo 2
- F6 - Clean Spank
- F7 - Clean Squawk
- F8 - British Stack
- F9 - American Stack
- F10 - Dirty Combo
- F11 - Fusion
- F12 - Singing Lead
- F13 - Fuzzy Face
- F14 - Daddy's Tone
- F15 - Double Overdrive
- F16 - High Gain
- F17 - Sweet Tube
- F18 - Big Honk
- F19 - Power 1
- F20 - Power 2
- F21 - Beefy Drive
- F22 - Dyno Power
- F23 - Thick Blue
- F24 - Solo 1
- F25 - Solo 2
- F26 - Clean Comp
- F27 - Klean Krunch
- F28 - T:Dirty-D:Clean
- F29 - T:Clean-D:Dirty
- F30 - Auto Swell

Compressor

- F1 - Light 1
- F2 - Light 2
- F3 - Medium 1
- F4 - Medium 2
- F5 - Heavy
- F6 - MaxSustain

Wah

- F1 - Toe Heavy
- F2 - Linear
- F3 - Heel Heavy

Tube Distortion

- F1 - Warm Clean 1
- F2 - Warm Clean 2
- F3 - Warm Clean 3
- F4 - Bright Clean 1
- F5 - Bright Clean 2
- F6 - Bright Clean 3
- F7 - Dirty 1
- F8 - Dirty 2
- F9 - Dirty 3
- F10 - Sat Tube 1
- F11 - Sat Tube 2
- F12 - Sat Tube 3

Solid State

- F1 - Punchy
- F2 - Max Crunch
- F3 - Hi gain
- F4 - Low Fuzz
- F5 - Med Fuzz
- F6 - "The " Fuzz
- F7 - OverDrive1
- F8 - OverDrive2
- F9 - Chunk 1
- F10 - Chunk 2
- F11 - Warm Sus 1
- F12 - Warm Sus 2
- F13 - Warm Sus 3

10-Band EQ T&D

- F1 - Lo Boost
- F2 - Mid Cut
- F3 - Mid Scoop
- F4 - Mid Boost
- F5 - Hi Boost
- F6 - Warm
- F7 - Honky
- F8 - Smiley
- F9 - Notchy
- F10 - Punch

Noise Gate

- F1 - Silencer1 Pre T&D
- F2 - Silencer2 Post T&D

Effects Module Defaults

Dual Chorus

- Medium
- Shallow
- MildNWide
- MediumWell
- DeepDepth
- Max Depth
- Shimmery
- SloVibrato
- FstVibrato

Quad Chorus

- Medium
- MildNWide
- Medium Well
- Thick
- DeepDepth
- Deep
- Max Depth
- Shimmery
- SloVibrato
- FstVibrato

Octal Chorus

- Medium
- Shallow
- DeepDepth
- MaxDepth
- Thick
- Shimmery
- SpScrmblr

Dual Flange

- HiSweep70%
- HiSweep30%
- LoSweep70%
- LoSweep30%
- Throaty
- Nasally
- Gonzo
- IntenseL
- Intense R
- FlaChorus1
- FlaChorus2

Dual Phaser

- Mild Fast
- Mild Slow
- ShallowFst
- ShallowSlo
- Medium
- Deep
- Shimmery
- PhaChorus
- Psychelic

Pedal Phaser

- Mild
- Deep

Rotary Speaker

- FastLeslie
- SloLeslie
- MedLeslie
- GuitarOrgan

Stereo Tremolo

- DeepSlow
- DeepMedium
- DeepFast
- MildSlow
- MildMedium
- MildFast

Auto Pan

- WideSlow
- WideMedium
- Wide Fast
- Narrow Slow
- Narrow Med
- Narrow fast

Delay *

- 5sec/15%
- 2.5sec/15%
- 1sec/15%
- Slapback
- 300msEcho
- 400ms/30%
- 500ms/25%
- 800ms/20%
- 1SecEcho
- 1sec/0%
- 2.5sec/0%
- 5sec/0%
- Max Repeats

Dual Delay *

- PingPong
- 1SecTicToc
- Doubling
- Slapback
- RoundNRound
- Hard2Tap
- Thick Taps

Quad Delay

- RoundNRnd
- SynchroTap
- RtoLPanTap
- TripleSlow
- Ping Pong
- On the Rise
- Shav&Hrcut
- Horse Trot

Stereo Delay

- 2sec/20%
- 1sec/20%
- CombFilter
- Doubling
- SlapRight
- 400ms/30%
- 500ms/30%
- 600ms/30%
- Max Repeats
- 1sec/0%
- 2sec/0%

Stereo Dual Delay *

- Skip
- SwingPong
- PingPong1
- PingPong2
- DoubleSlap
- RoundNRnd
- Hard2Tap
- ThickEcho

Stereo Quad Delay *

- RoundNRnd
- SynchroTap
- Ping Pong
- HorseTrot
- Shav&Hrcut
- Ratatat
- Random

Long Delay *

- 2.5sec/15%
- 5sec/15%
- 7.5sec/15%
- 10sec/15%
- 2sec/20%
- 4sec/20%
- 6sec/30%
- 10sec/30%
- MaxRepeats

Analog Delay *

- 5sec/25%
- TrueAnalog
- 500ms
- 1 Second
- 2.5 Second
- Soft Echo
- Eternity

Stereo Analog Delay *

- 2sec/25%
- SoftEcho
- Eternity

Multi-FX Mods

Chorus/Delay

- MedChoEcho
- LitChoEcho
- MedChoSlap
- DeepChoDly
- ShimryEcho
- ModDly300ms
- DeepModDly
- DlyCho1Sec

Flange/Delay

- FlaMedD500
- FlaLitD300
- HeavyFIDly
- LoSweepDly
- ThroatyDly
- DoublGonzo
- FlangJelly

Reverse Delay

- Standard
- Long Trip
- One Note
- Duet

Time Warp

- Standard
- Slow Mo
- Whammy
- Shadow

Sampler

- 5Sec Smplr
- 60bpm 3/4
- 60bpm 4/4
- 80bpm 3/4
- 80bpm 4/4
- 100bpm 3/4
- 100bpm 4/4
- 120bpm 3/4
- 120bpm 4/4
- 2.5S Smplr
- 80bpm 3/4
- 90bpm 3/4
- 100bpm 3/4
- 100bpm 4/4
- 110bpm 3/4
- 110bpm 4/4
- 120bpm 3/4
- 120bpm 4/4

St Sampler

- 2.5S StSmp
- 80bpm 3/4
- 90bpm 3/4
- 100bpm 3/4
- 100bpm 4/4
- 110bpm 3/4
- 110bpm 4/4
- 120bpm 3/4
- 120bpm 4/4

Pre Delay

- 0ms
- 30ms
- 60ms
- 90ms
- 120ms
- Warm0ms
- Warm60ms
- Warm120ms
- HiPass1
- HiPass2
- HiPass3
- LoPass1
- LoPass2

Reverb

- SmoothHall
- Bar'nGrill
- OakFloorRm
- LiveRoom
- FoilPlate
- GoldPlate
- Smphny Hall
- RichChmber
- Sanctuary
- Arena
- CmntGarage
- PlutoVerb

Dual Reverb & St Dual Reverb

- BrightHall
- LngDrkHall
- ConcrtHall
- MiniHall
- FlatChambr
- WarmChambr
- BigCatherl
- SmlCatherl
- GoldPlate
- Thinplate
- LivePlate
- StudiAmb
- StudioRoom
- WoodRoom
- FlutterRvb
- Very thin
- CementRoom
- HugeArena

Stereo Reverb

- SmoothHall
- Bar'nGrill
- OakFloorRm
- VocalReverb
- FoilPlate
- GoldPlate
- SmphnyHall
- RichChamber
- Sanctuary
- SaltPalace
- CmntGarage
- PlutoVerb
- Vocal Air

Gated Reverb

- 100msGated
- 200msGated
- 300msDecay
- 300msGated
- Reverse150
- Reverse300
- 300msPeak

Spring Tank Reverb

- Short Decay
- Long Decay
- Wet Spring
- SurfSplash
- Ratl&Boing

Room Echo

- WideSlap
- LiveSlap
- Springy
- Stage
- Voxy
- Synchopate

Dual Detuner

- +/-5 Cents
- 5 Cents
- +/-10 Cents
- 12 Cents
- Single Dtn

Quad Detuner

- Wide
- Shallow
- Medium
- Deep

Stereo Detuner

- Shallow
- Medium
- Deep

Octal Detuner

- Wide
- Shallow
- Medium
- Deep

Smooth Pitch

- ShiftDn Oct
- ShiftDn 4th
- ShiftDn 20c
- ShiftUp 4th
- ShiftUp 5th
- ShiftUp Oct

Dual Pitch

- 5th/OctUp
- 5thUp/OctDn
- 3rd/5thUp
- Min3/5thUp
- 4thOctDn
- OctUp/Dn
- OctDown/Dtn
- 5ths Down
- 1&2OctsUp

Quad Pitch

- MajChord
- MinChord
- Oct/Dtn
- 5th/OctDtn
- 5Octaves
- Octal Pitch
- Chord/Det1
- Chord/Det2
- MinChrdDtn
- 5thsOcts

Stereo Pitch

- 5th Up
- Min3rdUp
- Maj3rdUp
- OctaveUp
- 4thDown
- Octave Down
- 2 OctsDown

Stereo Dual Pitch

- 5th/OctUp
- 5thUp/OctDn
- 3rd/5th Up
- Min 3rd/5th Up
- 4th/OctDn
- OctUp/Down
- OctDownDtn
- 1&2OctsUp

Whammy

- Octave Up
- Octave Down
- 2ndMin3rd
- 2ndMaj3rd

Harmony

- Amaj 3rdUp
- Amaj 6thUp
- Emin 3rdUp
- Emaj 6thDn
- Ador 3rdUp
- Dmix 3rdUp
- Ahar 3rdUp

Auto Wah

- Low Sens
- High Sens

Equalizers

8-Band Mono GEQ 15-Band Mono GEQ & 31-Band Mono GEQ

- Flat
- Low Pump
- Sizzle
- Smiley
- InvrtPhase

8-Band Stereo GEQ

- Flat
- Low Pump
- Sizzle
- Smiley
- PhaseInvrtL

3-Band Stereo PEQ

- Flat
- Low Boost
- Smiley
- PhaseInvrtL
- PhaseInvrtR
- SmlBoost
- LowNudge
- 60HzNotch

6-Band Mono PEQ

- Flat
- Low Boost
- Smiley
- 60HzNotch
- InvrtPhase

6-Band Stereo PEQ

- Flat
- Low Boost
- Smiley
- 60HzNotch
- PhasInvrtL

* Delay Defaults vary from 1/4, 1/2 and Full Module size. The Delay defaults shown are Full module sizes

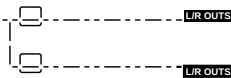
Digital Effects

There are literally dozens of digital effects available for you to choose from. The Digital Effects can be placed in any order that you choose, and you may even run redundant effects. Up to four Digital Effects can be used simultaneously in the RP21D. The Digital Effects are accessed by using the Effects button. The first press of the Effects button will take you to the Configuration page. A configuration determines how the signal is routed from module to module, and the processing power allocated to each effect. The processing power of the S-DISC II modules is divided into 4th power modules which use 25% of the total processing power available (represented by the number 4), HLF power modules which use 50% of the processing power (represented by the number 2), three quarter power modules which use 75% of the processing (represented by the number 3), and FUL power modules which use 100% of the processing power. A full power module is capable of much more control and fine tuned adjustments than a quarter power module is. A full power reverb for instance, will sound smoother than a quarter power reverb. The configuration will also affect the way that the RP21D responds when morphing between the two Preamps. See page 50 for more on how the configuration affects the morphing. The RP21D contains 15 different configurations for you to choose from. The following is a list of configurations available.

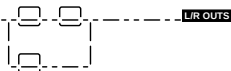
Configuration 1
(Series -Full)



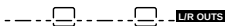
Configuration 6
(Split Parallel- 2, 2)



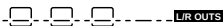
Configuration 11
(Parallel - 4, 4, 2)



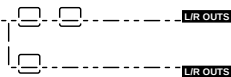
Configuration 2
(Series - 3, 4)



Configuration 7
(Series - 4, 4, 2)



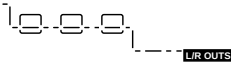
Configuration 12
(Parallel/Split - 4, 4, 2)



Configuration 3
(Series - 4, 3)



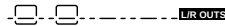
Configuration 8
(Series - 2, 4, 4)



Configuration 13
(Series - 4, 4, 4, 4)



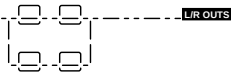
Configuration 4
(Series - 2, 2)



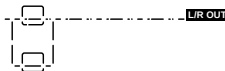
Configuration 9
(Series - 4, 2, 4)



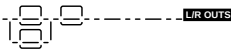
Configuration 14
(Parallel - 4, 4, 4, 4)



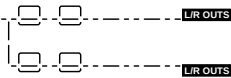
Configuration 5
(Parallel - 2, 2)



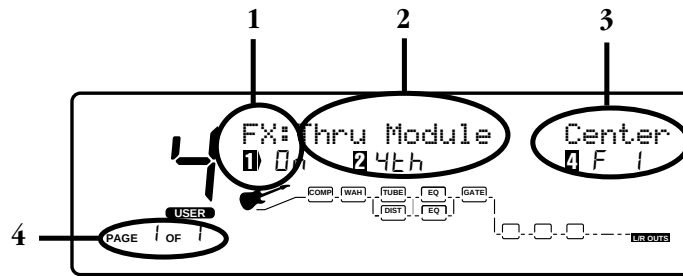
Configuration 10
(Parallel - 4, 4, 2)



Configuration 15
(Parallel/Split - 4, 4, 4, 4)



When you access the configuration page, you can rotate the Data Wheel to select one of the 15 configurations. Once you have selected the desired configuration, press the Effects button again to access and edit the Digital Effects. The first box in the configuration will begin to flash indicating that this is the module you are about to edit. The display may look something like this:

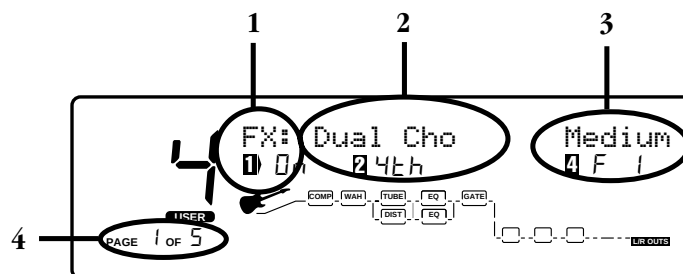


The display is now telling you four things about the digital effect.

1. The effect module is on. The number 1 icon is indicating that you need to press the number 1 button in order to change the status of the effect.
2. The current effect is a Thru module (just passes dry signal) and it is using one fourth of the processing power available. The number two icon is indicating that you must press the number two button to access the type of effect. You can then rotate the Data Wheel to select any of the quarter power effects. The processing power allocated to the effects can only be changed by selecting a different configuration.
3. The pan position of the Thru module is in the center. The number four icon is indicating that you must press the number four button to access the pan parameter. You can then use the Data Wheel to change the pan position.
4. This is the only page of parameters associated with the Thru module.

Changing Effects

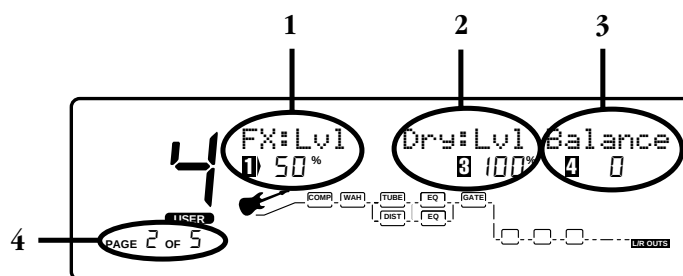
When you change the configuration on a Program, all modules in the new configuration will automatically default as thru modules. This means that you will not have any digital effects processing until you select the type of effects that you want to use. Choosing the type of effect is accomplished by pressing the number 2 button and rotating the Data Wheel until the desired type of effect is shown above the number two icon. Then you can edit the parameters associated with the effect to suit your application. Let's suppose that you wanted a chorus as the first effect in your digital chain. From the screen shown previously, you would press the number two button, and rotate the Data Wheel until the display showed Chorus above the number 2 icon. The display would look something like this:



The Display is now telling you four things about the Chorus Effect.

1. The Effect is on. The number one icon is indicating that you must press the number one button to access the on/off parameter. You can then rotate the Data Wheel to change the status of the Chorus Effect.
2. The type of effect currently active is a Chorus. The number two icon is indicating that you must press the number 2 button to access the type of effect. You can then rotate the Data Wheel to select a different type of effect.
3. The default setting for the Chorus is Factory default 1 (F1) which is a medium chorus setting. The number four icon is indicating that you must press the number four button in order to access the default parameter. You can then rotate the Data Wheel to select a different default.
4. There are 5 pages of parameters associated with the Chorus, and you are currently on the first page. Pressing the Next Page button will advance to the second page.

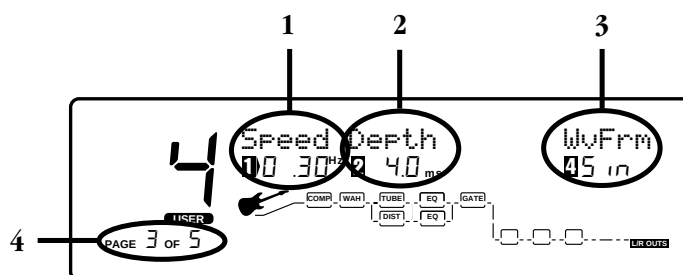
Once the second page of parameters has been accessed, the display will look something like this:



The display is now telling you four more things about the Chorus parameters.

1. This is the input level of the Chorus effect. The number one icon is indicating that you must press the number one button to access the effect level parameter. You can then rotate the Data Wheel to change the value of the effect level.
2. This is the level of the Dry signal being mixed in with the Chorus effect. The number three icon is indicating that you must press the number three button to access the Dry level parameter. You can then rotate the Data Wheel to change the value of the Dry level.
3. This is the left/right Balance parameter of the Chorus effect. The number four icon is indicating that you must press the number four button to access the Balance parameter. You can then rotate the Data Wheel to change the value of the Balance.
4. There are 5 pages of parameters associated with the Chorus, and you are currently on the second page. Pressing the Next Page button will advance to the third page.

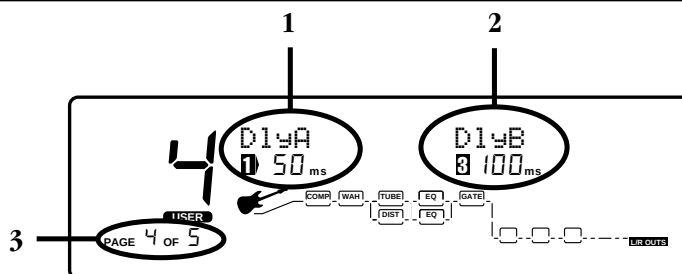
Once the third page of parameters has been accessed, the display will look something like this:



The display is now telling you four more things about the Chorus parameters.

1. This is the Speed of the Chorus effect. The number one icon is indicating that you must press the number one button to access the Speed parameter. You can then rotate the Data Wheel to change the value of the Speed.
2. This is the Depth of the Chorus effect. The number two icon is indicating that you must press the number two button to access the Depth parameter. You can then rotate the Data Wheel to change the value of the Depth.
3. This is the Wave Form parameter of the Chorus effect. The number four icon is indicating that you must press the number four button to access the Wave Form parameter. You can then rotate the Data Wheel to select a different Wave Form.
4. There are 5 pages of parameters associated with the Chorus, and you are currently on the third page. Pressing the Next Page button will advance to the fourth page.

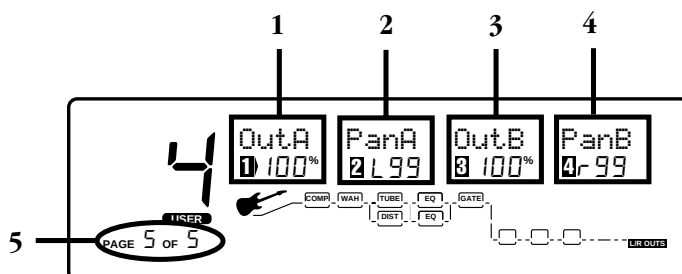
Once the fourth page of parameters has been accessed, the display will look something like this:



The display is now telling you three more things about the Chorus parameters.

1. The Dual Chorus has two delay circuits. This is the delay time of the first delay in the Chorus effect. The number one icon is indicating that you must press the number one button to access the Delay A parameter. You can then rotate the Data Wheel to change the Delay time of the first Delay.
2. This is the delay time of the second delay in the Chorus effect. The number three icon is indicating that you must press the number three button to access the Delay B parameter. You can then rotate the Data Wheel to change the Delay time of the second Delay.
4. There are 5 pages of parameters associated with the Chorus, and you are currently on the fourth page. Pressing the Next Page button will advance to the fifth page.

Once the fifth page of parameters has been accessed, the display will look something like this:



The display is now telling you five more things about the Chorus parameters.

1. This is the Output Level of the first Chorus circuit in the Dual Chorus effect. The number one icon is indicating that you must press the number one button to access the Output Level A parameter. You can then rotate the Data Wheel to change the Output Level of the first Chorus circuit.
2. This is the Pan position of the first Chorus circuit in the Dual Chorus effect. The number two icon is indicating that you must press the number two button to access the Pan A parameter. You can then rotate the Data Wheel to change the Pan position of the first Chorus circuit.
3. This is the Output Level of the second Chorus circuit in the Dual Chorus effect. The number three icon is indicating that you must press the number three button to access the Output Level B parameter. You can then rotate the Data Wheel to change the Output Level of the second Chorus circuit.
4. This is the Pan position of the second Chorus circuit in the Dual Chorus effect. The number four icon is indicating that you must press the number four button to access the Pan B parameter. You can then rotate the Data Wheel to change the Pan position of the second Chorus circuit.
5. There are 5 pages of parameters associated with the Chorus, and you are currently on the fifth page. There are no more parameters associated with the Chorus effect. Pressing the Next Page button will return to the first page.

Like the Preamp effects, every Digital effect includes user defaults which can hold your favorite settings for quick recall. The procedure for storing defaults to the Digital effects is the same as for the Preamp effects defaults. See page 21 for more information on storing a default to an effect.

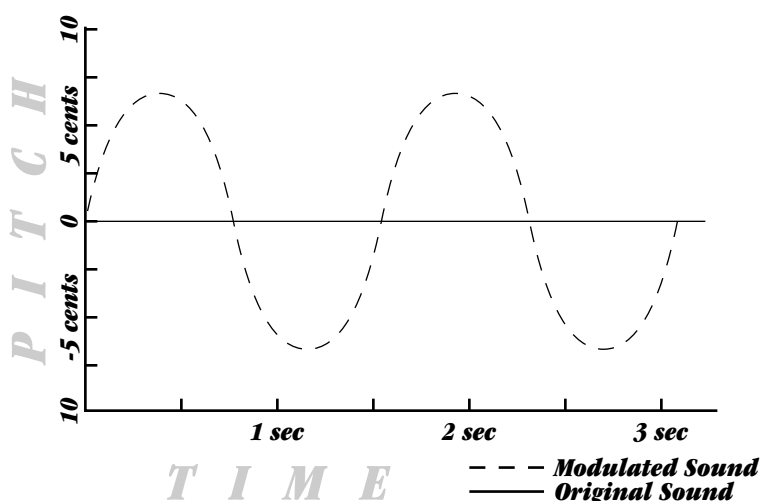
Effect Types

Pressing the Effects button will advance you to the next module in the Digital Effect chain. The procedure for editing each module will be the same as the procedure previously described with the chorus. The only exception being that different effects will have different parameters, and some may have a different number of pages. The following is a list of the types of effects available with the RP21D, and a definition of the parameters.

Choruses and Flangers

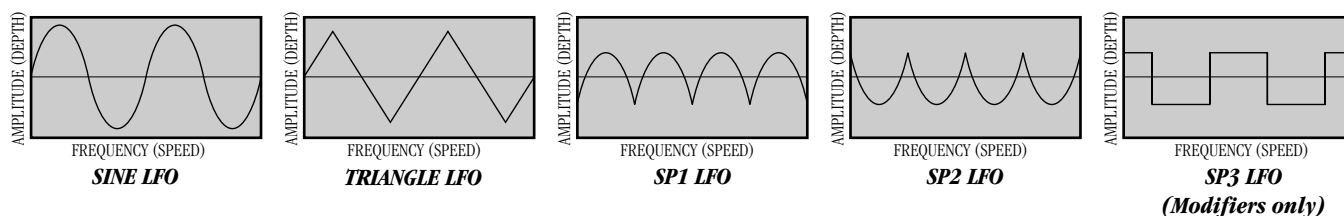
Both choruses and flangers use a Low Frequency Oscillator (LFO) to produce their rich, swirling effects. When you change the speed and depth Parameters of modulation effects, you're actually controlling the frequency and amplitude of the LFO. These settings determine the rate and intensity of the modulation effect.

In general, here's how a chorus works: after entering the Module, the source signal is split into two paths. One is allowed to pass through the Module unaltered, while the other is delayed and pitch modulated with an LFO. The modified sound is then sent to the output, along with the original. In the following figure, a sine wave is used to modulate the pitch of the split sound source. The Dual Chorus creates two different pitch "voices", while the Octal Chorus creates eight voices for extremely full, rich sounds.



The only difference between choruses and flangers is that flangers use less delay and have a feedback Parameter that sends a portion of the effected signal back to the input of the selected module. When the effected signal reaches the input, it is sent through the Module again, building thickness and depth. If you increase the feedback enough, the source begins to lose its own original pitch to the dramatic pitch modulation of the feedback loop.

LFO Waveforms: There are four LFO waveforms available for Choruses, Flangers, Phasers, Tremolos, Auto Panners. They include SINE, TRIangle, SPecial-1, SPecial-2, and SPecial-3. The following examples show what these waveforms look like.



Chorus

Chorus is probably the most basic modulation effect. It is really just a very small delay whose time is always changing. As the time is varied, the delayed signal's pitch changes (just like a tape recordings pitch raises when you play it faster). By moving the time back and forth, you hear a sound that goes in and out of tune. When combined with the original sound, it almost sounds like more than one instrument is playing. The RP21D uses several choruses at once to make huge rich sounds. For example, the octal chorus uses eight chorus voices at once

to create an incredible ensemble of sound. Aside from the more obvious speed and depth parameters (which adjust respectively how fast and far the sound goes out of tune), the RP21D allows you to use different waveforms. The waveform defines how it will move in and out of tune. The triangle waveform is very popular for slow, shallow chorus settings, while the sine waveform works nicely for faster, deeper settings.

When do I use Chorus? The Chorus effect is so vast in applications, an easier question would probably be “When can’t I use a Chorus. When playing the Blues, turn the Speed and Depth parameters up to produce an almost Leslie-Type effect. When trying to obtain “Big” rock guitar tone, use the Chorus to thicken-up and add depth to your sound. And, any time your using a clean tone Program, the guitar is always much more lush sounding when Chorus is added.

Chorus Parameters:

Note: not all parameters listed below are available in all Chorus modules.

FX: Lvl	Controls the signal input level fed to the module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the left/right positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Speed	Controls the Low Frequency Oscillator (LFO) speed of the chorus. Ranges from 0.06 to 16.0 Hz.
Depth	Adjusts the intensity of the chorus effect. High settings produce dramatic modulation, while lower settings can be used to produce a more subtle, ambient swirling. Ranges from 0 to 30 milliseconds.
Depth 1 - 2	DEPTH1 adjusts the intensity of chorus voices 1-4. DEPTH2 adjusts the intensity of chorus voices 5-8. Ranges from 0 to 30 milliseconds.
Wander Speed	Controls the secondary LFO speed of chorus voices 5-8. This is a secondary oscillator for voices 5-8 that causes deviations from the oscillation path set by DEPTH2. This control can produce radical new textures when used creatively. Try setting it slightly faster or slower than SPEED. Ranges from 0.06 to 2.0 Hz.
Wander Depth	Adjusts the intensity of the oscillation deviations produced by WANDER SPEED. WANDER DEPTH produces dramatic psycho-acoustic swirling effects when set higher than DEPTH2. Ranges from 0 to 10 milliseconds.
WvFrm	Selects which waveform the LFO follows. Options: sine, triangle, SP1 (special 1), and SP2 (special 2). See figure 3-4
Dly A - B	Controls the delay time of chorus voices A and B. Higher delay time settings produce a more dramatic sweeping sound. Ranges from 0 to 60 milliseconds.
Dly C - D	Controls the delay time of chorus voices C and D. Higher delay time settings produce a more dramatic sweeping sound. Ranges from 0 to 60 milliseconds
Dly E - H	Controls the delay time of chorus voices E through H. Higher delay time settings produce a more dramatic sweeping sound. Ranges from 0 to 60 milliseconds
Out A - B	Adjusts the overall level of chorus voice A or B. Ranges from Off to 100%.

Pan A - B	Controls the placement of chorus voice A or B. Ranges from -99 to 99.
Out C - D	Adjusts the overall level of chorus voice C or D. Ranges from Off to 100%.
Pan C - D	Controls the placement of chorus voice C or D in the stereo image. Ranges from -99 to 99.
Out LA - LB	Adjusts the left-side level of chorus voice A or B. Ranges from Off to 100%.
Out RA - RB	Adjusts the right-side level of chorus voice A or B. Ranges from Off to 100%.
Spread	Controls the width of the effect's stereo imaging. The higher the setting, the wider the image. The lower the setting, the more monophonic the effect becomes. Ranges from 1 to 10.

Flanger

A flanger is just a chorus that loops back into itself, causing what can be described as a tubular sound (since it sounds much like the reflections heard inside a large cement or metal pipe). It is still a modulating effect, so you hear a lot of sweeping movement. This makes the flanger a very colorful effect that can be easily overused if you're not careful. The more you feed the flanger back to itself, the more intense the sound becomes.

When do I use Flanger? An electric guitar is the first sound that begs for the flanger effect. It works very well with both clean and distorted guitar sounds. By setting the Speed and Depth parameters to higher settings, this will add more depth and body to the overall guitar signal.

Flanger Parameters

Note: Not all of the parameter listed below are available in all of the Flanger modules.

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Speed	Controls the Low Frequency Oscillator (LFO) speed of the flanger. Ranges from 0.06 to 16.0 Hz.
Depth	Controls the intensity of the flange effect. High settings of DEPTH combined with high settings of FDBCK produce dramatic, synth-like textures. Ranges from 0 to 30 milliseconds.
FdBck	Controls how much of the flanged signal is fed back to the input of the Module. The FDBACK Parameter is what gives flangers their distinctive voice. Flangers are capable of both positive and negative feedback loops, so experiment to find the sound you like best. Ranges from -99% to 99%.
WvFrm	Selects which waveform the LFO follows. Options for this control include sine, triangle, SP1 (Special 1), and SP2 (Special 2). The sine wave setting is probably the most easily recognized, but the smooth response of the triangle wave or the intensity of SP1 or SP2 typically produce better results. See figure 4-2.
Dly A - B	Controls the delay time of flange voice A or B. Shorter delay times produce a more dramatic, deeper sweeping sound. Ranges from 0 to 60 milliseconds.

Out A - B	Adjusts the overall level of flange voice A or B. Ranges from Off to 100%.
Pan A - B	Controls the stereo soundfield placement of flange voice A or B. Ranges from -99 to 99.
Out L - R	Controls the output level of the left or right side of the flanger. Ranges from Off to 100%.

Phasers

The Phaser or “Phase Shifter” as it is sometimes called, is a classic effect from the 70's that uses phase cancellation to create a warm sweeping effect. The effect is created by making a copy of a signal and moving it in and out of phase while mixing it with the original signal. As it moves, different frequencies are cancelled out creating a smooth curling sound. There is also a feedback control that sends the shifting signal back into the phaser's input. This intensifies the sound even more.

When do I use a Phaser? A great example of this can be heard most when you listen to music of the 70's. Guitarist of the day loved their Phasers. A Phaser is a great effect to use when playing clean and funky rhythms.

Phaser Parameters:

Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Speed	Controls the Low Frequency Oscillator (LFO) speed of the phaser. Ranges from 0.06 to 16.0 Hz.
Depth	Controls the intensity of the phaser effect. High settings of DEPTH combined with high settings of FDBCK produce dramatic, synth-like textures. Ranges from 0 to 30 milliseconds.
FdBck	Controls how much of the flanged signal is fed back to the input of the Module. The FDBACK Parameter is what gives phasers their distinctive resonating sound. Ranges from -99% to 99%.
WvFrm	Selects which waveform the LFO follows. Options for this control include sine, triangle, SP1 (Special 1), and SP2 (Special 2). The sine wave setting is probably the most easily recognized, but the smooth response of the triangle wave or the intensity of SP1 or SP2 typically produce better results. See figure 4-2.
Out A - B	Adjusts the overall level of phaser voice A or B. Ranges from Off to 100%.
Pan A - B	Controls the stereo soundfield placement of phaser voice A or B. Ranges from -99 to 99.
Out L - R	Controls the output level of the left or right side of the flanger. Ranges from Off to 100%.

Pedal Phaser

The Pedal phaser is a phaser that can be controlled by an expression pedal to control the depth and feedback of the effect

Pedal Phaser Parameters

FX and Dry Level	Controls the FX and Dry level of the Pedal Phaser module. Ranges from Off to 100%.
Balance	Sets the Balance of the effect. Ranges from L 100 to R 100.
Pedal	This parameter is used to be controlled by the expression pedal to control Depth and Feedback. Range: 0 to 100.

Depth	This parameter controls the amount of modulation depth in the phaser. Range is 0 to 100%.
Feedback	This parameter controls amount of feedback in the phaser effect. Range is 0 to 100%.
Output A-B	This parameter sets output of the pedal phaser effect. Range is from 0 to 100%.
Pan A-B	This parameter sets pan of the pedal Phaser Range is from 0 to 100%.

Rotary Speaker Simulator

The Rotary Speaker Simulator allows you to emulate the classic rotating speaker sound, without the chiropractic problems that come with moving bulky speaker cabinets. The Rotary speaker is directly responsible for some of the most unique sounds in music. The applications for this effect are so diverse, it can be used to achieve sounds ranging from the Allman Brothers Band to the legendary Stevie Ray Vaughan.

A unique parameter in the Rotating Speaker simulation is the Acceleration parameter. This parameter is used emulate the the time that it takes to get the Speaker up and spinning at full speed. The parameter can be assigned to a footswitch or the expression pedal so you can control the acceleration speed.

Rotary Speaker Simulator Parameters:

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right)
Mode	Selects which speed mode the Rotor and Horn are in. Settings are fast or slow.
Spread	Sets the horn stereo microphone spread. Ranges from 0 to 100%.
H - R: Level	Sets the overall level of the Rotor or Horn. Ranges from Off to 100%.
Slo - Fast Hrn Speed	Controls the Low Frequency Oscillator (LFO) speed of the Horn. Ranges from 0.06 to 16.0 Hz.
Slo - Fast Hrn Depth	Controls the intensity of the rotating effect. Ranges from 0 to 30 milliseconds.
Slo - Fast Hrn Doppler	Sets the amount of shifted pitch heard in the Horn. Ranges from 0 to 50 milliseconds.
Slo - Fast Rtr Speed	Controls the Low Frequency Oscillator (LFO) speed of the Rotor. Ranges from 0.06 to 16.0 Hz.
Slo - Fast Rtr Depth	Controls the intensity of the rotating effect. Ranges from 0 to 30 milliseconds.
X-Over	Selects the frequency where the signal is split between the Horn and Rotor. Ranges from 25Hz to 20kHz.
Acceleration: H - R	Sets the amount of time that the Rotor and Horn take to come up to their full rotating speed. Ranges from 0 to 10 seconds.

Tremolo and Auto-Panner

Look out, because the popular Tremolo and Auto panner effects of the 50's and 60's are back with a vengeance. These effects that revolutionized "Surf-Style" music can be heard all over the air waves in the 90's. Tremolos and auto panners are similar to one another in that they both use an LFO to modulate input levels to produce vibrato effects.

Tremolo

The word tremolo actually has several definitions in the music world. It basically means that a sound is being modulated in amplitude (the volume is beating or pulsing). It could be emulated by turning a volume knob up and down. But you probably have better things to do than turn a volume control up and down throughout a whole song, so let the RP21D do it for you.

Aside from speed and depth parameters, the tremolo also has an LFO waveform that determines the way a signal's volume is increased and decreased. While the Sine wave is probably the most common to the ear, the Triangle and Special 2 waveforms are progressively more intense.

When do I use Tremolo? Tremolo is truly a vintage sound for the guitar, electric piano and organ. Most pronounced on the guitar, you can hear it used on everything from sweet ballads to blues rock 'n roll.

Auto Panner

The auto panner is really just a dual version of a tremolo. It changes the amplitude of the left signal just as a tremolo does, but the amplitude of the right signal is inverse to that of the left signal. This gives the illusion that the signal is moving back and forth between the left and right speakers.

The Auto Panner's Speed typically doesn't get set as fast as the Tremolo since you usually want a sound to move smoothly back and forth in the stereo image. The RP21D auto panner is especially flexible since it can be used for either mono or stereo input sources. When used with a mono source, the signal pans back and forth as described earlier. When a stereo sound source is used, the original stereo image is maintained by moving the volume of the left signal exactly opposite of the right signal. The stereo image fades back and forth between the stereo extremes.

When do I use an auto panner? The auto panner can be a very creative tool. When running your guitar rig in a stereo set-up with the right amount of cabinet separation, the Auto-Panner creates a stereo panning effect that is right out of this world.

Auto panners can also add life to delays or choruses by moving them around instead of just sitting in one place in the mix. Simply place an auto panner module after a delay or chorus module. You don't need to set the auto panner's depth parameter too deep since you just want some gentle movement.

Tremolo & Auto Panner Parameters:

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Speed	Controls the Low Frequency Oscillator (LFO) speed of the effect. Ranges from 0.06 to 16.0 Hz.
Depth	Controls the intensity of the effect. As DEPTH increases, volume changes become more dramatic. Ranges from 0 to 30 milliseconds.
WvFrm	Selects which waveform the LFO follows. Options for this control include sine, triangle, SP1 (Special 1), and SP2 (Special 2). The sine wave setting is probably the most easily recognized, but the smooth response of the triangle wave or the intensity of SP1 or SP2 typically produce better results. See figure 4-2 on page 41.

Delays

A delay produces discrete, repeating echoes of the source material at a specified interval. In digital delays, the input signal is "sampled" or recorded into memory, where it is held for the amount of time you specify with the delay time setting, after which the sample is replayed at the output. The RP21D delays have a feedback meter that is used to send a portion of the delayed signal back to the input to be re-recorded along with new source material. The feedback setting determines how long the delay repeats take to decay to inaudibility.

When do I use delay? When you're the lone guitarist in a band, the Delay can be your best friend. The Delay repeats can create the illusion that there is more than one guitar being played. One trick to using delays effectively is setting the delays to fall in time with the music. This used to mean grabbing a calculator, dividing 60 by the tempo (beats per minute), then dividing that answer by the desired sub-beats . . . Sound like a hassle? Yeah, we thought so too. So the RP21D takes care of all the calculations for you! All you have to do is tap the TapIt (assign the tapit parameter to a footswitch) and manually tap in the desired delay time and the new time is added.

Another common use for delay is for stereo imaging. Very small amounts of delay (10-25ms) can be used to make a signal sound like it is panned to one side. This trick works because of the way the brain interprets sounds. When your left ear hears something before the right ear, it thinks that the source of that sound is found somewhere to your left. You can also use delays set at 30-60ms, which spreads a sound to the extremes of the stereo image. Be careful with this technique if your mix has a chance of being listened to in mono.

Delay Parameters

Note: not all of the parameters listed below are available in all Delay modules.

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Dly Time	Sets the maximum delay time available to each delay voice. For example, if DELAYTIME is set to 1000 ms, each delay voice can be set from 0 to 100% of that delay time. Ranges from 0 to 1.4 seconds (Maximum delay times differ between 4th, 3/4, HLF, and FUL module Types.) Half bandwidth delay times automatically double the set delay time used.
FdBck	Controls the fade time of the delay repeats. Higher settings take longer to fade out, while a setting of zero could be used to limit the delay to one repeat per voice. The delay provide both positive and negative feedback settings. Ranges from -99% to +99%.
TapIt	Allows you to change DELAYTIME in real-time, by tapping the TAPIT button at the tempo you want. Delay voice percentages do not change when using this control.
Smear	Sets the spread of Diffusion of the Delay Repeats. Ranges from 0 to 100%.
LPF	Selects where the Low Pass Filter is positioned within the Delay Module. Positions are: Pre Delay or Post Delay.
Frequency	Selects the Frequency band that appears in the LPF. Ranges from 25 Hz to 20 kHz.
Gain	Controls the output gain of the LPF. Ranges from -12 to 12.
Dly A - B	Controls the percentage of DELAYTIME allocated to delay voices A and B. For example, if DELAYTIME (above) is set to 1000 ms and DLYA is set to 75%, the voice A delay time is 750 ms. Remember, each voice in the Module can have any delay time up to 100% of DELAYTIME. Ranges from 0% to 100%.
Dly C - D	See Dly A - B.
Out	Adjusts the overall level of the Delay. Ranges from Off to 100%.

Pan	Controls the stereo soundfield placement of the delay. Ranges from -99 (all left) to 99 (all right).
Out L - R	Adjusts the left or right output level of the Delay. Ranges from Off to 100%.
Out A - B	Adjusts the output level of delay voice A or B. Ranges from Off to 100%.
Pan A - B	Controls the stereo soundfield placement of delay voice A or B. Ranges from -99 (all left) to 99 (all right).
Out C - D	Adjusts the output level of delay voice C or D. Ranges from Off to 100%.
Pan C - D	Controls the stereo soundfield placement of delay voice C or D. Ranges from -99 (all left) to 99 (all right).
Out LA - LB	Adjusts the left-side output level of delay voice A or B. Ranges from Off to 100%.
Out RA - RB	Adjusts the right-side output level of delay voice A or B. Ranges from Off to 100%.
Out LC - LD	Adjusts the left-side output level of delay voice C or D. Ranges from Off to 100%.
Out RC - RD	Adjusts the right-side output level of delay voice C or D. Ranges from Off to 100%.

Multi Effects Modules - Chorus/Delay and Flange/Delay

The RP21D Multi Effect Modules allow the User to combine either Delay and Chorus or Delay and Flange within one Effect module block. This is ideal for situations where the User needs to add another effect to the Effect Configuration, but is running low on signal processing resources. Within the module, there is a unique parameter that allows you route the signal several different ways between the two effects.

Multi-Effect Module Parameters

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Route	Selects the route signal path within the Chorus/Delay, and Flange/Delay Multi effects modules. The 3 settings are: 1) Chorus/Flange into Delay with feedback into the Delay 2) Chorus/Flange into Delay with feedback into Chorus/Flange 3) Delay into Chorus/Flange with feedback thru the Chorus/Flange.
Speed	Controls the Low Frequency Oscillator (LFO) Speed of the Chorus or Flanger. Ranges from 0.06 to 16.0 Hz.
Depth	Adjusts the intensity of the Chorus or Flanger effect. Ranges from 0 to 30 milliseconds.
Feedback (Flanger)	Controls how much of the flanged signal is fed back to the input of the Module. The FDBACK Parameter is what gives flangers their distinctive voice. Flangers are capable of both positive and negative feedback loops, so experiment to find the sound you like best. Ranges from -99% to 99%.
WvFrm	Selects which waveform the LFO follow. Options for this control include: Sine, Triangle, SP1 (Special 1), and SP2 (Special 2).

C/F: Delay	Controls the delay time of the Chorus or Flanger voice. Ranges from 0 to 40 milliseconds.
Delay Time	Sets the delay time for the delay tap. Ranges from 0 to 300 milliseconds.
Feedback	Controls the fade time of the delay repeats. Higher settings take longer to fade out, while a setting of zero will limit the delay to one repeat. Ranges from 0 to 99%.
TapIt	Allows you to change the Delay time in real-time by tapping the TAPIT button at the tempo you want. Delay voice percentages do not change when using this control.
Level: C/F/D	Controls the overall output level of each effect block. Ranges from Off to 100%.
Pan: C/F/D	Controls the stereo soundfield placement of each effect block. Ranges from -99 (all left) to 99 (all right).

Reverse Delay

A reverse delay is an echo effect which records the incoming signal, and then repeats it backwards. This effect is similar to the backwards masking effect done in recording studios. This is where a guitar was recorded on to tape and then played backwards while being mixed back in to the music.

On/Off	Selects whether the effect is active, or bypassed.
FX Level	Controls the volume level of the reverse delay signal. Ranges from off to 100%
Dry Level	Controls the volume level of the incoming source signal, or the signal that has no reverse delay effect. Ranges from off to 100%
Balance	Controls the left/right placement of the reversed signal in the stereo field. Ranges from l-99 (full left) to r-99 (full right) 0 is centered.
Reverse Time	This parameter adjusts the length of time for which the effect will record. Range is dependent upon the processing power assigned to the module (5 seconds maximum with full power module).

Time Warp

Time warp is an interesting effect that records the incoming signal in to the delay, has the ability to then slow it down, and then play it back in reverse. It sounds similar to hitting the stop button on a multi-track recorder, and you hear the sound slow down as the reels slowly stop turning, and then the passage plays backwards.

On/Off	Controls whether the time warp effect is active, or bypassed.
FX Level	Controls the volume of the time warped sound. Range is from off to 100%.
Dry Level	Controls the volume of the original unaffected signal. Range is from off to 100%.
Amount	Adjusts the amount that the signal is warped or slowed down. Range is from off to 100%. 0-50 creates a tape stop effect. 51-100 creates a tape start effect in reverse.
Warp Time	This is the length of time that the effect will record an incoming signal. Range depends upon the size of the selected module.
Out L	Volume control for the left output. Range is from off to 100%.
Out R	Volume control for the right output. Range is from off to 100%.

Sampler

A sampler will record a musical passage, or riff. It will then trigger, or repeat it on your demand. Samples can be layered (one sample stacked on top of another), and may put in loop mode (where they continue to repeat automatically).

On/Off	Controls whether the sampler effect is active, or bypassed.
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Loop	This parameter will engage, or disengage the loop function. With the loop function engaged, the sampled signal will automatically continue to repeat. Range on and off.
Over Dub	This parameter allows you to play one passage in to the sampler, and then layer another passage over the top of the first one. In other words, the two samples will combine. Ranges on and off.
RecPB	This selects whether the sampler is about to record a sample, or playback the existing sample. When no sample has been recorded, this will default automatically to the record mode. After a sample has been recorded, it will default to playback mode. Range record and playback.
Trig	This is the trigger parameter. Every time that the trig parameter is adjusted, it will repeat the recorded sample from the beginning.
Start Time	This parameter allows you to trim the beginning of the sample. If for instance the recorded sample has an undesired pause or noise at the beginning of it, the start time may be used to remove this from the sample. Range varies depending on the size of the module.
End Time	This parameter allows you to trim off the end of the sample. If the sample had recorded more than you wanted it to, this excess in the recording may be removed. Ranges vary depending on the size module that was used.
AudTrg	This is an on/ off parameter, which selects whether the recorded sample can be triggered (told to repeat) by the incoming audio signal, or not. Range on and off.
AudThr	This parameter selects the strength of the audio signal necessary to trigger the sample when the ""audio trigger"" parameter has been set to on. Ranges from off to 100%
RecLvl	Adjusts the volume level of the source signal as it is recorded.
Direct	Adjusts the volume of the dry signal, or the signal that will pass through the sampler.
PlyLvl	Adjusts the volume level of the signal after it has been recorded by the sampler.

Reverbs

Reverberation is probably the most widely used effect because it allows you to simulate the sound reflection characteristics of almost any kind of room. In a real room, reverb is a result of sound reflecting off room surfaces such as the walls, floor, ceiling, and objects in the room. The materials, size, and shape of the room determine how long these reflections echo and decay before dying out completely. These factors also help determine the audio characteristics of the room, such as how long the high-frequency reverberations ring when compared to the low frequencies, or how much initial "slapback" the room wall produces when a sound hits.

Today's technology allows the RP-21D to offer a complete palette of flexible, easy to use reverbs. There are seven basic reverbs to choose from:

- 1) **Reverb** - Simple, straight ahead reverb with only the most basic parameters.
- 2) **Dual Reverb** - Multi-dimensional reverb with flexible frequency band-splitting capabilities. The reverb can be divided into primary and secondary stages using selectable High or Low Pass cross-overs.
- 3) **Stereo Dual Reverb** - A true stereo version of the Dual Reverb.
- 4) **Stereo Reverb** - A true stereo version of the Reverb Module.
- 5) **Gated Reverbs** - A very linear, high energy reverb that can be set to decay, stay flat, or ramp up the reverb decay, creating many unique ambient effects.
- 6) **Spring Reverb** - A recreation of the old Spring Tank Reverb found in Vintage and Modern combo Amps.
- 7) **Room Echo** - A true stereo, multi-tap delay for creating small ambient spaces. The delays are divided into four sections of early reflections. These reflections can be placed anywhere in the stereo field and can be as dense or sparse as necessary. The Room Delay also includes a feedback loop for delay regeneration.

Reverb

Real life reverberation is the result of sound reflecting off surfaces in a room or hall. It can best be described as millions of small echoes that decay over a period of time. The size of the room, the surface type of the walls, or the carpet on the floor all contribute to the way real reverberation behaves and sounds.

When do I use Reverb? When recording in the studio, nearly always. Many guitar tracks, for example, are recorded in a very sterile environment (i.e. very dry), but adding reverb can add lush depth to any guitar track and you can get those great sounds in the Studio or Live.

Why should I use stereo reverb? Digital Effects such as Chorus and Delay produce stereo imaging type effects. Stereo reverb helps maintain that original stereo image. But don't forget that millions of hit recordings were made using mono input reverbs that created a stereo output image. The theory is that sound generally originates from one point in a room, so mono often works just fine. The rule? Don't get caught using too much reverb on your guitar in live situations. Even if the room is small, it still produces some reverb. Too much makes the guitar go away. Let it compliment the room.

Gated Reverb

Gated reverb doesn't behave as naturally as the standard varieties of reverb. Originally, it was created by taking a long, dense reverb and chopping it short with a noise gate. This made for a burst of reverberation energy that could help thicken up a variety of sounds.

Digital signal processing techniques improved and soon allowed ways to create similar gated reverb sounds that were far more usable and flexible. Today's gated reverb doesn't get gated at all, it just sounds like it does. It is actually a large burst of delay taps that create the gated reverb sound. This allows you to choose the length of the effect along with different slope shapes.

When do I use Gated Reverb? Using a Gated Reverb in a multi-effect guitar application is ideal for producing unusual special effects. Using the Gated reverb can produce a very rich and intense and ambience which can thicken up a guitar tone in many ways. This type of reverb is also ideal for producing an effect that is similar to backward masking.

Reverb Parameters:

Note: Not all of the parameters listed below are available in all Reverb modules.

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the left/right positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Type	Selects the reverb type. Each room type has a different decay range (just as real rooms do), so changing TYPE also changes the decay time of the room. Types are: Studio Room, Wood Room, Vocal Plate, Concert Hall, Plate Reverb, Chamber, Cathedral, Arena, Cement Shelter, and Infinite Spring (for Reverbs), and: Flat, Shelf, Decaying Linear, Decaying Logarithmic, Decaying Exponential, Decaying Sine, Reverse Linear, Reverse Logarithmic, Reverse Exponential, Reverse Sine, Peaking Linear, and Peaking Exponential (for Gated Reverbs).
Density	Controls the number of discrete room wall reflections during the early portions of DECAY. Higher settings produce more reflections while low settings yield fewer initial wall echoes. Use this control in conjunction with DISPERSION to build or reduce the thickness of early reflection clusters heard near the beginning of the reverberation. Ranges from 0% to 99%.

Dispersion	Controls the distance (time) between the echoes set by DENSITY. If DENSITY is set low and DISPERSION is set high, the initial room echoes. Dispersion can be heard as discrete echoes followed by smoother room reverberations. Set DISPERSION low for a dense cluster of reflections during the early portions of DECAY. Ranges from 1 to 5.
Diffusion	Simulates the presence of different room materials by controlling the smoothness of reverberations through the course of DECAY. Low DIFFUSION settings are great for simulating hard, flat surfaces while higher DIFFUSION settings can be used to simulate the presence of irregular surfaces in the room such as natural rock masonry or man-made diffusers. Unlike flat surfaces, these materials reflect (diffuse) the sound in many directions because of the irregularity of the surfaces themselves. This builds smoothness over the reverb progression. Ranges from 0% to 99%.
X-Over Type	Selects which crossover type will be used for the Primary Secondary reverb stages. The two crossover types are High Pass (HP) and Low Pass (LP).
X-Over Freq.	Selects the Frequency where the crossover begins to function. Ranges from 25Hz to 20kHz.
Prim & Secd X-Over	These two Parameters allow the crossover to be turned On or Off for each reverb stage. When Off, that particular stage will be full bandwidth, otherwise its frequency response is limited by the X-Over Type and Frequency Parameters.
Prim & Secd Damp	Adjusts how quickly the room absorbs the high-frequency reverberations. In a real room, absorptive materials can be used to dampen the natural high-frequency reverberations of the room. High settings of DAMP cause the reverberations to darken tonally and become less defined over the course of DECAY. Low settings cause less dramatic room effects on the tone of the reverberations. Ranges from 1 to 7.
Low Pass	Selects the frequency above which all frequencies are rolled off. This control can be used to darken the response of bright-sounding gated reverbs. Ranges from 100 Hz to 8 kHz in the Gated Reverb and from 100 Hz to 20 kHz in the Stereo Gated Reverb.
Time	Controls the length of the gated reverb in milliseconds (much like the DECAY control of a normal reverb). Ranges from 25 milliseconds to 300 milliseconds in the Gated Reverb and from 500 milliseconds in the Stereo Gated Reverb.
Blend	Cross-mixes reverberations from the left side into the right side and vice-versa. This can be used to increase the realism of the simulated room by adding reverberations from different parts of the room to each channel. Ranges from 0% to 99%.
Prim & Secd Blend	Adjusts the amount of BLEND for the Primary and Secondary reverb stages. See BLEND above for a complete parameter description.
Decay	Controls the length (RT60) of the room reverberations. This one control could have been divided among Size and Reflection controls but has been simplified here for easier use. To simulate a large room, use longer DECAY settings. For small rooms, use shorter DECAY settings. For more natural sounding reverbs, you may also want to decrease the DENSITY setting as DECAY is shortened. Ranges from .5 to 23 seconds depending on the Reverb Type currently selected.
Prim & Secd Decay	Controls the length (RT60) for the Primary and Secondary reverberation stages. This Parameter interacts with the SIZE and REFLCT Parameters. Larger SIZE and REFLCT settings will allow longer reverb decay times while smaller settings reduce the length of the reverb decays but produce better small environment emulations. Ranges from .26 to 11 seconds.

Prim & Secd Size	Changes the relative room size of the Primary and Secondary reverb stages. Ranges from 1 to 5.
Prim & Secd Reflect	Controls the simulation of energy loss of sound each time it is reflected. Hard, smooth materials like glass and wood have more reflectivity than softer, more porous materials. This control can be thought of as determining the “liveness” of the room. Ranges from 1 to 10.
Note: The following Delay Parameters that are utilized within the Reverb section are to be used in the Room Echo reverb module.	
Delay A	Sets the length of time before hearing Delay Group A. Ranges from 0 to 120 milliseconds.
Delay B	Sets the length of time before hearing Delay Group A and Delay Group B. Ranges from 0 to 120 milliseconds.
Delay C	Sets the length of time before hearing Delay Group B and Delay Group C. Ranges from 0 to 120 milliseconds.
Delay D	Sets the length of time before hearing Delay Group C and Delay Group D. Ranges from 0 to 120 milliseconds.
Out A - D	Controls the output level of the Delay Groups. Ranges from Off to 100%.
Bal A - D	Controls the left/right balance of the Delay Groups. Ranges from -99 to 99.
Shape	Selects the shape of the output levels for the delay group taps. Shape selections are: Flat, Peak, Decreasing, Increasing, Shelf, and Reverse Shelf.
Spread	Controls the width of the effect's stereo imaging. Ranges from 1 to 10.
FB: Dly	Sets the amount of time before the delay is fed back in. Ranges from 0 to 170 ms.
Amount	Sets how much delay is fed back into the signal. Ranges from Off to 50%.
Out L - R	Adjusts the overall level of the left/right side of the reverb. Ranges from Off to 100%.
Prim Out L	Adjusts the overall level of the left side of the Primary reverb. Ranges from Off to 100%.
Prim Out R	Adjusts the overall level of the right side of the Primary reverb. Ranges from Off to 100%.
Secd Out L	Adjusts the overall level of left side of the Secondary reverb. Ranges from Off to 100%.
Secd Out R	Adjusts the overall level of the right side of the Secondary reverb. Ranges from Off to 100%.

Detuners

The detuner effect does exactly what its name implies; it detunes a sound (moves it out of tune) and allows you to add it to the original sound. The result can be almost chorus-like, but it doesn't move like the chorus effect does. This actually makes the detuner more transparent and not quite as thick as the chorus effect, which in many applications is a good thing (since effects can quickly pile up and clog up great sounding audio).

When do I use a detuner? The detuner falls into the same guidelines as the chorus effect. It works with just about everything; It is ideal for thickening up a rhythm guitar track. Remember to experiment with the delay parameters if you are looking for a wider detuning sound. Adding 30-60 ms of delay to the detuner's voices that are panned hard to one side (while not delaying the other side) will change the detuner's stereo imaging greatly.

Detuner Parameters

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right).
Dtn A - B	Controls the detuning amount for detuner voices A and B. Higher detune settings produce a more dissonant sound. Ranges from -50% to 50%.
Dtn C - D	Controls the detuning amount for detuner voices C and D. Ranges from -50% to 50%.
Dtn E - H	Controls the detuning amount for detuner voices E through H. Ranges from -50% to 50%.
Dly A - B	Controls the amount of time before detuner voices A and B are heard. Higher delay time settings produce a short slapback delay effect. Ranges from 0 to 60 milliseconds.
Dly C - D	Controls the amount of time before detuner voices C and D are heard. Ranges from 0 to 60 milliseconds.
Dly E - H	Controls the amount of time before detuner voices E through H are heard. Ranges from 0 to 60 milliseconds.
Out A - B	Adjusts the overall level of detuner voice A or B. Ranges from Off to 100%.
Pan A - B	Controls the stereo soundfield placement of detuner voice A or B. Ranges from -99 (all left) to 99 (all right).
Out C - D	Adjusts the overall level of detuner voice C or D. Ranges from Off to 100%.
Pan C - D	Controls the stereo soundfield placement of detuner voice C or D. Ranges from -99 (all left) to 99 (all right).
Out LA - LB	Adjusts the left side level of detuner voice A or B. Ranges from Off to 100%.
Out RA - RB	Adjusts the right side level of detuner voice A or B. Ranges from Off to 100%.
Spread	Controls the width of the effect's stereo imaging. The higher the setting, the wider the image. The lower the setting, the more monophonic the effect becomes. Ranges from 1 to 10.

Pitch Shifters and Harmony

The pitch shifter allows you to move sound from one pitch to another. It accomplishes this by recording a small part of the original sound and then playing it back either faster (to raise the pitch) or slower (to lower the pitch). It does this over and over again to create a new pitch.

The Harmony modules give you almost unlimited possibilities. you can use different harmony intervals to produce slide guitar effects. or Major or Minor 3rd intervals to create dual soloing lines reminiscent of the Eagles' "Hotel California".

When do I use pitch shifting? Guitarists are probably the most well known users of pitch shifters. They commonly pitch shift their sound down by an octave to get a deep rumble out of their distortion, or shift it an octave up to emulate a 12 string guitar.

Both guitar and synth players have created some amazing textures by pitch shifting their sound up a fifth (7 semitones). This creates more complex chords out of simple ones (e.g. a basic Cmaj chord sounds like a Cmaj9 chord, or Cmin7 becomes a Cmin11 chord). Lead lines sound amazing when using major 5th intervals up.

Pitch Shifters Parameters

Note: not all of the parameters listed below are available in all Pitch Shifter modules.

FX: Lvl	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Dry: Lvl	Controls the level of the dry (unaffected) signal. Ranges from Off to 100%.
Balance	Controls the positioning of the dry signal in the stereo soundfield. Ranges from -99 (all left) to 99 (all right)
Shift A - B	SHFTA and SHFTB control the pitch intervals between the original note and voices A and B of the pitch shifter. Pitch shifters can be used for a wide variety of effects, including doubling, octave division, and chromatic harmonies. Each Pitch Shifter has a 4-octave range, stepped in semitones from -24 to +24.
Dtn A - B	Controls the detuning amount for pitch-shifted voices A and B. As DTN moves away from zero, dissonance becomes more pronounced. Low DTN settings can be useful for thickening or enhancing the imaging of the source material. Ranges from -50% to 50%.
Shift C - D	See Shift A - B.
Dtn C - D	See Dtn A - B.
Shift E - H	See Shift A - B.
Dtn E - H	See Dtn A - B.
Key	Sets the diatonic key for the harmonies. If the song you are playing is in the key of G Major, you would select G for the scale.
Scale	Sets the scale type for the Harmony you want to hear. Scale types include: Major, Minor, Harmonic Minor, Melodic Minor, Dorian, Mixolydian, Lydian, Lydian Augmented, Major Pentatonic, Minor Pentatonic, Blues, Whole Tone, Half-Whole, and Whole-Half.
Interval	Sets the basic interval of the Harmony. You can choose from one of several Harmony intervals. See the Harmony Interval Charts for reference.
Out A - B	Adjusts the overall level of pitch-shifted voice A or B. Ranges from Off to 100%.
Pan A - B	Controls the placement of pitch-shifted voice A or B in the stereo image. Ranges from -99 (all left) to 99 (all right).
Out C - D	Adjusts the overall level of pitch-shifted voice C or D. Ranges from Off to 100%.
Pan C - D	Controls the placement of pitch-shifted voice C or D in the stereo image. Ranges from -99 (all left) to 99 (all right).
Out E - H	Adjusts the overall level of pitch-shifted voice E through H. Ranges from Off to 100%.
Pan E - H	Controls the placement of pitch-shifted voice E through H in the stereo image. Ranges from -99 (all left) to 99 (all right).

Out L - R	Adjusts the left or right output level of the pitch-shifted voice. Ranges from Off to 100%.
Out LA - LA	Adjusts the left-side level of pitch-shifted voice A or B. Ranges from Off to 100%.
Out RA - RB	Adjusts the right-side level of pitch-shifted voice A or B. Ranges from Off to 100%.
Spread	Controls the width of the effect's stereo imaging. The higher the setting, the wider the image. The lower the setting, the more monophonic the effect becomes. Ranges from 1 to 10.

Whammy Effects

In today's music industry, it seems that every album on the charts, whether it be Country, Rock, Industrial, or Alternative, are using the Whammy technology in some shape or form. Whether it be a subtle chorus Detune, or an all out 2 octave Whammy Dive, this thing is a definite attention getter, and first-call studio effect. At this rate, the Whammy effect could possibly log-in as much studio time as Chet Atkins.

Whammy Effect Parameters

Whammy On/Off	Turns the Whammy module on or off. When the module is turned off, the signal will only continue to pass through the module if the dry level is turned up.
FX Level	This parameter lets you select the overall FX level mix of the Whammy Effect module. Ranges from: Off to 100%.
Dry Level	This parameter lets you select the amount of Dry signal that is included in the Whammy effect. Ranges from: Off to 100%.
Balance	This parameter allows you to pan the Dry signal either to the Right or the Left in the stereo soundfield. Ranges from Left 99 to Right 99.
Min Shift	This parameter sets the minimum pedal shift level of the Whammy effect. Ranges from: -72 (6 octaves down), to 24 (2 octaves up).
Max Shift	This parameter set the maximum pedal shift level of the Whammy effect. Ranges from: -72 (6 octaves down), to 24 (2 octaves up).
Min Detune	This parameter sets the minimum pedal level of detune effect. Ranges from: -50% (down 50 cents), to 50% (up 50 cents).
Max Detune	This parameter sets the maximum pedal level of detune effect. Ranges from: -50% (down 50 cents), to 50% (up 50 cents).
Pedal	This parameter is used for the assignment of an expression pedal. This parameter also shows the pedal travel range. Ranges from: 0 to 100
Out	This parameter is used to set the overall output level of the Whammy module. Ranges from: 0 to 100%
Pan	This parameter is used to position the Whammy effect in the Stereo soundfield. Ranges from: Left 99 to Right 99.

Auto Wah

Break out the Bell-bottom jeans and the Disco mirror balls, because the Auto-Wah is here to play. The Auto Wah is a great effect use when you want a nasally wah-type effect, but you don't want to do the leg work. The Auto Wah utilizes a sensitivity detector that reads the input signal, then simulates the action of a wah pedal.

Auto Wah Effect Parameters

Auto Wah On/Off	Turns the Auto Wah module on or off. When the module is turned off, the signal will continue to pass through the module.
FX Level	This parameter lets you select the overall FX level mix of the Auto Wah Effect module. Ranges from: Off to 100%.
Sensitivity	This parameter adjusts the sensitivity of the detection of the automatic wah. The higher the sensitivity is set, the wider the Wah range will be. Ranges from: Off to 100%.

Equalizers

The RP21D has a broad selection of equalizer Modules to cover virtually any need. If you need bigger Guitar tone, the EQs will give it to you. Both mono and stereo modules are available. Remember that mono equalizers connected to stereo sources will always sum the stereo signal together for equalization (thus eliminating the stereo image). If you need to maintain the stereo image, use a stereo equalizer module.

The Parametrics allow you to cover very specific regions of the sound spectrum with extreme precision and control. Up to 6 bands of either stereo, or mono parametric equalization are available.

The Graphic equalizers use 1/3, 2/3, or 1 2/3 octave ISO-standard frequency centers. Equalization or EQ is probably one of the most valuable tools the RP-20 Valve offers. EQ allows you to change the level of certain frequencies of a sound, and it comes in two different basic flavors: graphic and parametric. Graphic is the most common and easiest to use, but the parametric offers much more flexibility and power.

When do I use EQ? This may seem overly simplistic, but you should use EQ whenever your ears tell you to use it! However, you need to remember that EQ can do more harm than good when not used carefully. The EQ can take that thin and “Clangy” sounding Guitar and add all of the low end in the world that your heart may desire. This can also be used on the other side. If you have a song that needs tight and bright rhythm guitar, you can use the EQ modules to take out the Lows and build up your mids

Here are a couple of simple examples:

If you feel your guitar tone is just a little dull, try cutting some of the lower frequencies, you always have to boost up the guitar's' high frequencies, because it could quickly become too bright. Often, good EQ techniques use cut more than boost. This is where the old saying “less is more” definitely applies.

If you are having a hard time being heard in the mix, don't make it louder. Listen carefully and see if there is another instrument that is conflicting with your Guitar. Adding a little EQ in the right spot of the less dominant guitar will allow it to speak a little easier through the rest of the music.

Graphic Equalizers

Graphic EQs give you control of the levels for fixed or pre-selected frequencies (bands) that are evenly spaced. The RP21D offers 8 and 15 band Mono and 8-band Stereo GEQs and a 31 band mono GEQ. They all cover the complete range of frequencies, but the spacing between the 31 bands is much closer than the 8 bands, therefore offering more exact control of the sound.

Graphic Equalizer Parameters

Level	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Phase	Inverts the phase of the source signal. Can be set either IN or OUT of phase.

Phase L - R	Inverts the phase of the left or right side of the stereo source signal. Can be set either IN or OUT of phase.
Freq	Controls the amount of boost / cut applied to the selected frequency. The GEQ 8 uses 1-1/3 octave ISO standard frequency centers, (Hz) while the GEQ15 and GEQ31 use 2/3 octave and 1/3 octave frequencies. Boost/cut range for each band is from -12 to 12.

Parametric Equalizers

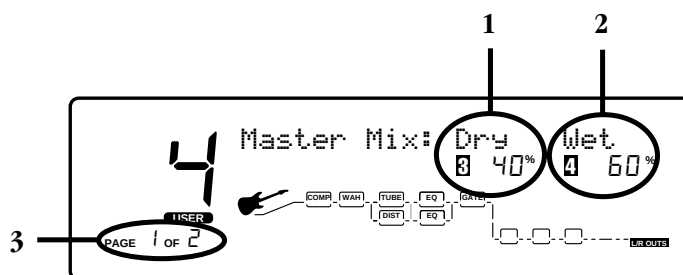
Parametric EQs offer the added flexibility of letting you define the center frequency you want to adjust, and how many frequencies around that center frequency you want to affect. Some of the PEQ modules in the RP21D also include high shelf and low shelf EQ bands. A high shelf allows you select a frequency, and the boost/cut parameter changes the level of all the frequencies above that selected frequency. The low shelf works the same way but works on frequencies below the selected frequency.

Parametric Equalizer Parameters

Level	Controls the signal input level fed to the Module. Ranges from Off to 100%.
Phase	Inverts the phase of the source signal. Can be set either IN or OUT of phase.
Phase L - R	Inverts the phase of the left or right side of the stereo source signal. Can be set either IN or OUT of phase.
LoShlv Freq	Selects the center frequency of the low-frequency shelving EQ band. Ranges from 25Hz to 20kHz.
LoShlv Level	Adjusts the amount of boost or cut applied to the center frequency of the low-frequency shelving EQ band (selected by LOSHLV FREQ). Ranges from -12 to 12.
Band # Freq	Sets the center frequency of the selected band. 6-band PEQs have four true parametric bands of EQ plus shelving high- and low-frequency controls with variable frequency. Bands 1 and 2 range from 25 Hz to 20 kHz. Bands 3 and 4 range from 1 kHz to 20 kHz.
Band # Width	Controls the bandwidth of the selected frequency. The higher the setting of WIDTH, the more frequency-selective the boost/cut becomes. In other words, with low (narrow) WIDTH settings, frequencies around the selected center frequency are not affected by the LEVEL setting. As WIDTH increases, frequencies around the center frequency become affected by the setting of LEVEL. Range is from 0.08 to 4.00 kHz.
Band # Level	Adjusts the amount of boost or cut applied to the selected frequency. Varies from -12 to 12.
HiShlv Freq	Selects the center frequency of the high-frequency shelving EQ band. Ranges from 1kHz to 20kHz.
HiShlv Level	Adjusts the amount of boost or cut applied to the center frequency of the high-frequency shelving EQ band (selected by HISHLV FREQ. Ranges from -12 to 12.

Master Mix

The Master Mix is found at the end of editing your Digital Effects. After you have edited the last Digital Effect module in your configuration, press the Effects button again. The Display will look something like this:

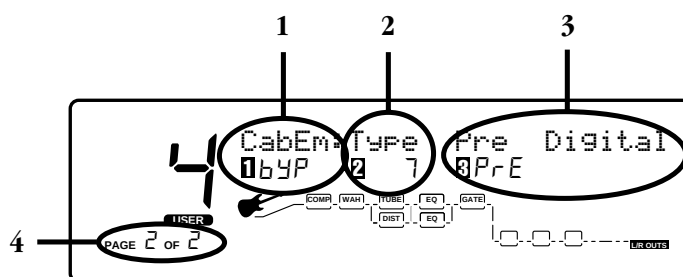


The Display is now telling you four things about the Master Mix.

1. This is the Dry Level present at the output of the Digital Section. The Dry signal is the raw Preamp signal absent of Digital Effects. The number three icon is indicating that you must press the number three button in order to access the Dry level Parameter. You can then rotate the Data Wheel to change to level of the Dry signal present in the mix.
2. This is the Wet Level present at the output of the Digital Section. The Wet signal is the Preamp signal after it has been processed through the Digital Effects. The number four icon is indicating that you must press the number four button in order to access the Wet level parameter. You can then rotate the Data Wheel to change the level of the Wet signal present in the mix.
3. This is telling you that there are two pages of parameters associated with the Master Mix, and that you are currently on the first page. Press the Next Page button to access page two.

Cabinet Emulator

Page two of the Master Mix Section provides access to the Cabinet Emulator parameters. Once you have accessed this page, the display will look something like this:

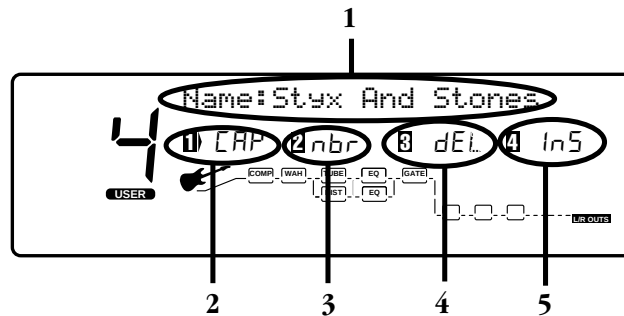


The Display is now telling you four things about the Cabinet Emulator.

1. This parameter will turn the Cabinet Emulator on or off within the currently active Program. The number one icon is indicating that you must press the number one button in order to access the on/off parameter. You can then rotate the Data Wheel to change the status of the Cabinet Emulator for you Program.
2. This is the Cabinet Type. Each type will provide different tonal response to the Program. The number two icon is indicating that you must press the number two button in order to access the Cabinet type parameter. You can then rotate the Data Wheel to change the type of cabinet being used.
3. This parameter selects whether the Cabinet Emulator will be placed before or after the Digital section. The number four icon is indicating that you must press the number four button to access the Cabinet Emulator placement parameter. You can then rotate the Data Wheel to change between pre or post digital.
4. This section of the display is telling that there are two pages of parameters and that you are on the second page. There are no more pages to display.

Storing/Copying Programs

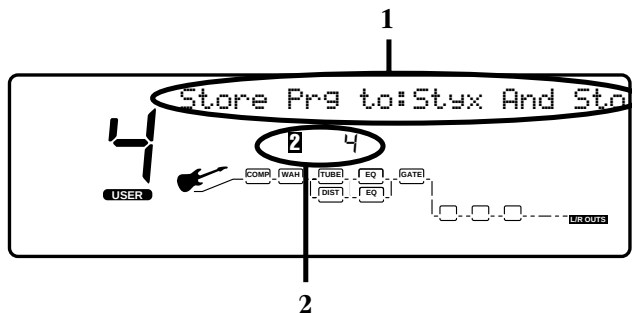
Any time that you make a change to a Program, the store button will light indicating that in order to retain the changes, you have to store your changes to a Program. If you switch Programs, or turn the power off to the RP21D without storing your changes, the RP21D will revert to the last stored version of that Program erasing all the changes that you had made. Once you have edited a Program to your satisfaction, press the store button once. The Display will take you to a naming menu and look something like this:



The display is now showing you 5 things that pertain to naming the Program.

1. This is the current name of the Program. There will be a cursor under one of the characters of the name. This indicates which character has been selected. Rotating the Data Wheel will change the character. The next and previous page buttons will move the cursor right or left.
2. The number 1 icon is indicating that pressing the number 1 button will change the currently selected character to a letter, change from upper case to lower case, or lower case to upper case.
3. The number 2 icon is indicating that pressing the number 2 button will change the currently selected character to a number.
4. The number 3 icon is indicating that pressing the number 3 button will select the insert function and shift the characters to the left.
5. The number 4 icon is indicating that pressing the number 4 button will select copy and shift the characters to the right.

After you have given your new Program a name, press the Store button again. The Display will look something like this:



The Display is now telling you 2 things about where you are going to store this new sound.

1. This line of the Display is telling you that you are about to replace the Program that is named here.
2. This section is telling which Program number you are about to store your changes to. The number two icon is indicating that you must press the number two button in order to access the destination Program number. Then you can rotate the Data Wheel to select the Program number that you want to store your changes to.

Pressing the Store button a third time will execute the store function. The Display will briefly show Storing Program, and then return to the performance mode. Your changes have been saved. To copy one Program to another Program location, start by selecting the Program that you want to copy. Then follow the steps for storing a Program.

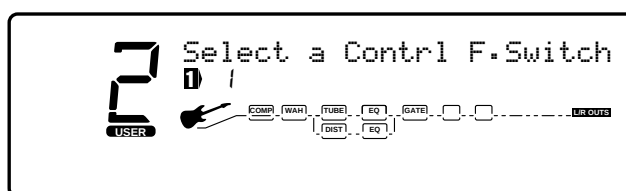
Section Three - Advanced Topics

Foot Controller Functions

The 10 numbered footswitches can perform a variety of different functions of the RP21D. You can use them to select specific Programs, turn effects on and off, and change to a specific value for any of the effect parameters. The Bank Up and Bank Down switches will increment and decrement through the 19 different Banks contained in the RP21D. Each Bank can have completely different functions assigned to each of the 10 numbered footswitches. In addition, by pressing and holding the Bank Up switch you can bypass all effects in the RP21D. By pressing and holding the Bank Down switch, you can access the tuner. The two Bank switch assignments are fixed and cannot be changed, but the 10 numbered footswitches can be assigned any function that you choose.

Assigning Programs

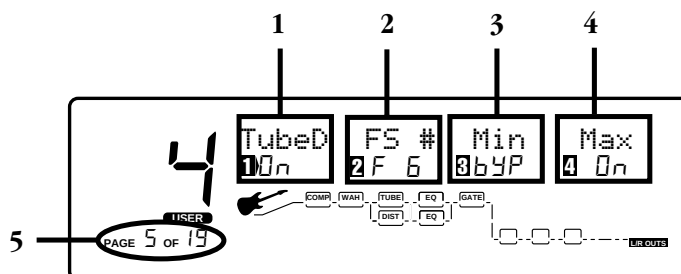
Assigning a footswitch to call up a specific Program is a very easy process. Simply use the Data Wheel to select the Program that you want to assign. Then press the Assign button once. The Display will look something like this:



At this point, the bottom row of switches will flash in succession from 1 to 5. They are asking you to choose which footswitch you want to assign the Program to. Simply press the desired footswitch. If no switch is pressed within 4 seconds, the RP21D automatically exits the Assign menu, and reverts back to the performance mode.

Assigning On/Off Functions

Assigning the on/ off function of an effect module to a footswitch is almost as easy as assigning a Program. Simply select the Program in which you want to switch an effect on and off. Use the Preamp or Effects buttons to select the effect module that you want to turn on and off. Use the 1-4 parameter buttons to select the on/off parameter (this will always be on the first page of the effects parameters and the first button). Press the Assign button once. If the function is already assigned to a footswitch, the display shown below will come up. If the function is not currently assigned, the Display will ask you to select a control Footswitch as previously shown in the Program assignment diagram. Press the footswitch you wish to use to turn your effect on and off with. The display will look something like this.



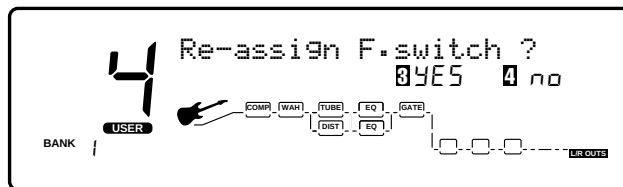
The display is now telling you 5 things about the Footswitch assignment.

1. This shows you that the parameter you have chosen to assign is the on/off parameter for the Tube Distortion, and that the assignment is on or active. The number one icon is indicating that you must press the number one button to access this parameter. You can then rotate the Data Wheel to turn this link on or off.
2. The footswitch that has been chosen to control this parameter is the number 6 footswitch. The number two icon is indicating that you must press the number two button to access this parameter. You can then change the footswitch number this parameter is assigned to by rotating the Data Wheel.

3. This is the minimum value that the parameter will change to. In our example this is the status when the light on the footswitch is out.
 4. This is the maximum value that the parameter will change to. In our example this is the status when the light on the footswitch is on.
- There are parenthesis in between the words Min and Max. These parenthesis will show the value as it changes in real time.
5. There are 19 pages of parameter control assignments that can be made. Each assignment is represented as one page.

Anytime that you make or change an assignment to a footswitch, you need to store the new assignments to the Program. See page 47 for information on Storing procedures.

If you try to assign an on/off function to a pedal that is currently assigned to select a program, or vice-versa, the Display will verify this change and ask you if you want to reassign the pedal. The Display will look something like this:



At this point you have two options:

1. If you want to change the Footswitch assignment from selecting a Program to switching an effect on and off, or vice versa, select yes by pressing the number 3 button.
2. If you don't want to reassign the function of the Footswitch, select no by pressing the number 4 button.

If no selection is made within 3 seconds, the RP21D will assume you did not want to reassign the footswitch and return to the previous menu.

Expression Pedal Assignments

The built in Expression Pedal on your RP21D can control any parameter of any effect in real time. In most of the Factory Programs the Expression Pedal is acting as a Volume Pedal, a Wah Pedal, or a Pitch Bend. However you can also assign the Expression Pedal to morph between the tube and solid state distortion paths, or between two different Digital effects, or change the delay time, or any number of other parameters. Assigning functions to the expression pedal are easy with the RP21D. Simply follow the steps listed below.

1. Use the Preamp or Effects buttons to select the effect module containing the parameter that you want to control.
2. Use the Next Page button to select the page containing the parameter you want to control.
3. Use the 1-4 numbered parameter buttons to access the specific parameter that you want to control.
4. Press the Assign button once.
5. Rock the Expression Pedal back and forth once.
6. Set the minimum and maximum values for the parameter.
7. Store the assignment to your Program.

If the Expression Pedal is already assigned to a parameter, you will have to delete the assignment. If you do not delete the assignment, the Expression Pedal will simply add the new assignment and control both parameters simultaneously. See the section on Viewing, Changing, or Deleting Expression Pedal Assignments for more information.

Assigning the Wah

As you can see, assigning the Expression Pedal to control a parameter is a very simple process. The most common mistake made when assigning the expression pedal is failing to access the specific parameter before pressing the Assign button. If for instance you want to assign the pedal to control the Wah, Step number 1 listed above is to press the Preamp button until you have accessed the Wah effect module. Step number two can be omitted because there is only one page of Wah parameters. Step number three would be pressing the number 2 parameter button to access the Wah pedal position parameter. Then continue with steps 4 through 7.

Assigning the Morph or Volume

Assigning the Expression pedal to control volume, or to morph between Tube and Solid State Distortion types uses the steps listed above as well, but you will find the Morph parameter on page two of the Configuration page. So, step 1 is pressing the Effects button which will access the Configuration page. Step is pressing the Next Page button to access page 2 of 2. Step 3 is to use the number 3 parameter button to access the pedal function. There are three possibilities for this parameter:

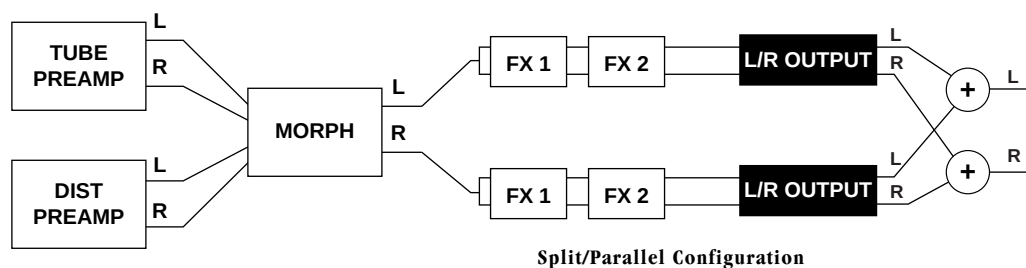
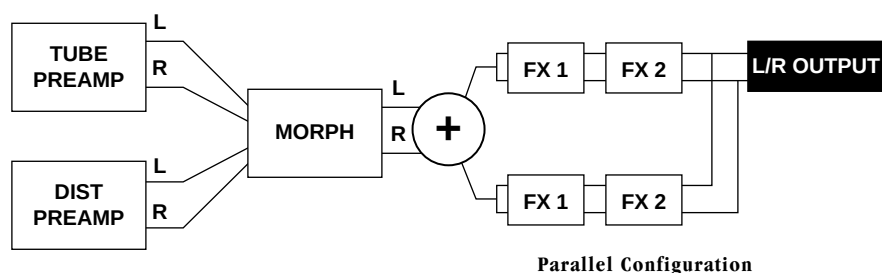
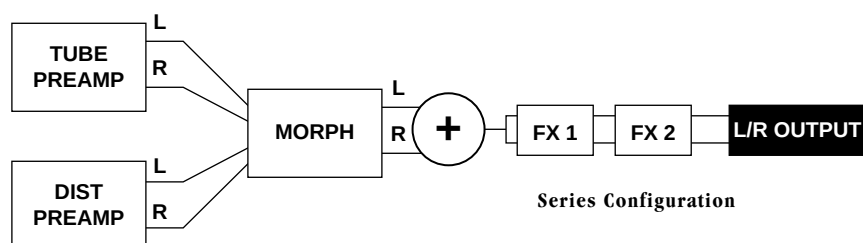
Pre Digital - When the Expression Pedal is set to control Volume, this selection will control the volume before the Digital Effects.

Post Digital - When the Expression Pedal is set to control Volume, this selection will control the volume after the Digital Effects.

Morphing - This selection will allow you to Morph between the Tube and Solid State Distortions of the Preamp.

Rotate the Data Wheel to make your selection. Then follow steps 4 through 7 listed above.

The Digital Effect configuration will make a difference in the way that the morphing function responds in relation to the Digital Effects. The following block diagrams show the signal flow for each type of configuration when morphing is assigned to the Expression Pedal.



Series

In the Series configuration, the left and right outputs of the Tube and Solid State Distortions get summed together at the output of the morphing section. A monaural signal is then fed into the Digital Effects which will provide the stereo image.

Parallel

In a Parallel configuration, the left and right outputs of the Tube and Solid State Distortions are summed together at the output of the morphing section. A monaural signal is then fed into both of the Digital Effects chains. The Digital Effects will provide the stereo imagine.

Split/Parallel

In a Split Parallel configuration, the left and right outputs of the Tube and Solid State Distortions are kept discrete. The left outputs of both are fed into the top Effects chain, and the right outputs are fed into the bottom Effects chain. Each chain will provide stereo outputs. The left outputs of both chains are summed together, and the right outputs of both chains are summer together.

See the Preamp Master section on page 19 for more information on panning assignments of the Tube and Solid State Distortions, and the Effect Configuration section on page 24 for more information on selecting a Digital Effect configuration.

Modifiers

A Modifier is a way of varying the value of a parameter automatically through the use of a Dynamic Filters and Low Frequency Oscillators, or remotely through the use of MIDI Continuous Controllers. This can dramatically alter your sound and create some interesting effects. The RP21D includes two dynamic filters, and two low frequency oscillators (LFO's) which can be assigned to modify any parameter of any effect. It is also capable of responding to any MIDI Continuous Controller.

Dynamic Filters

A Dynamic Filter will vary the value of the parameter it has been assigned to based on the amplitude of the incoming signal. In other words, you can change the value of an effects parameter simply by how hard or soft you strike the strings. For example, you could assign the Dynamic Filter of a Program to control a chorus level. As the dynamics of the music increase, the chorus becomes less apparent. Ease up on the string attack a little and the chorus increases. ALL IN REAL TIME!

Low Frequency Oscillators

An LFO will vary the value of any assigned parameter, between two pre-determined stop points automatically. An LFO will continuously cycle back and forth between two points at a speed that you designate. In other words, you could assign the Chorus Level to an LFO and the LFO would fade the Chorus in and out continuously. The speed that you set the LFO to operate at will determine whether the Chorus fades in and out gradually, or rapidly.

MIDI Continuous Controllers

A MIDI CC can be anything from an external expression pedal to the mod wheel of a MIDI synthesizer. A value will be transmitted on a specific MIDI CC number (between 1 and 127 and channel pressure). Any parameter within the RP21D that has been assigned to that same MIDI CC number will change its value as the MIDI CC changes value. In other words, you could assign the Chorus Effect Level to a MIDI CC number and your Chorus Level could be controlled by a MIDI sequencer or keyboard.

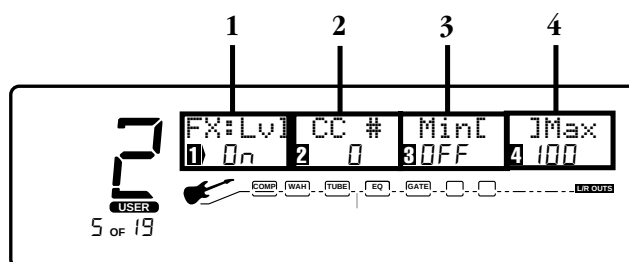
Assigning a Modifier to a Parameter

The Procedure for assigning a parameter to either type of modifier is as follows:

1. Use the Preamp or Effects buttons to select the effect that contains the parameter you wish to assign. In our example, we want to assign the Chorus Level to a modifier so, press the Effects button until you have reached the Chorus Effect (chorus must be an effect within the Program).
2. Select the parameter that you want to assign. Since the Effect Level of the Chorus is on the second page of Chorus parameters, press the Next Page button to access page two. The Effect Level is preceded by the number 1 icon so, press the number 1 button to select the FX Level
3. Press the Assign button twice and the display appears something like this:



4. The Display is telling you that the RP21D is ready to link the FX Level but that the link is turned off. Rotate the Data Wheel to turn the link on. The Display now looks something like this:

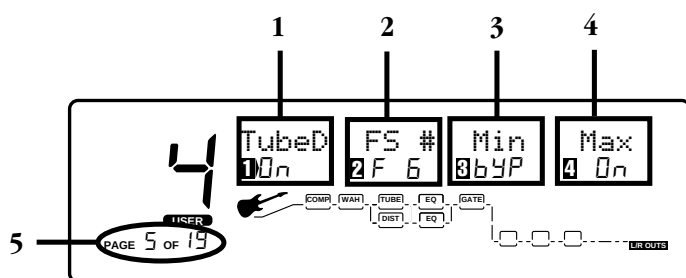


The Display is now telling you four things about the current assignment.

1. This tells you the assignment is on, and that the Parameter that is assigned is the FX Level.
2. This is the Modifier that you are assigning to control the FX Level. In the Display shown above, the Modifier assignment is MIDI CC #1. The number 2 icon is telling you that you must press the number 2 button in order to access this parameter. You can then rotate the Data Wheel to select a different Modifier. Your Modifier choices are MIDI CC 1-127 and ChP (channel pressure), LFO1 and LFO2 (the Low Frequency Oscillators), Dy1 and Dy2 (the Dynamic Filters), or any footswitch on the RP21D.
3. This is the Minimum value that the FX Level will reach when the Modifier is at it's minimum setting. The number 3 icon is indicating that you must press the number 3 button in order to access this parameter. You can then rotate the Data Wheel to change the Minimum value.
4. This is the Maximum value that the FX Level will reach when the Modifier is at it's maximum setting. The number 4 icon is indicating that you must press the number 4 button in order to access this parameter. You can then rotate the Data Wheel to change the Maximum value.

Viewing, Changing, or Deleting Assignments

When the Expression Pedal or Footswitches have been assigned to a parameter and you do not want to control that parameter any more, you must delete the assignment. To view the assignments that have been made to the Expression Pedal or Footswitches, press the Assign button twice. This will take you to a screen where you can view all parameters that have been assigned either to the Expression Pedal, or to the numbered Footswitches. The Display will look something like this:



The Display is now telling you five things about the pedal assignments.

1. This is the name of the assigned parameter, and the current status of the assignment. The number one icon is telling you that in order to access this parameter you must press the number one button. You can then rotate the Data Wheel to turn off, or delete the assignment.
2. This is telling you where the assignment has been made. The number two icon is indicating that you must press the number two button in order to access this assignment. You can then rotate the Data Wheel to change the controller assignment. Your choices are Footswitches, Expression Pedal, Dynamic Filters, LFO's, and MIDI controllers.

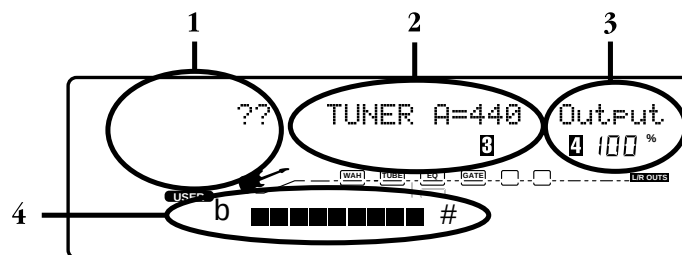
3. This is the minimum value that the parameter will change to. The number three icon is indicating that you must press the number three button to access the minimum value parameter. You can then rotate the Data Wheel to change the minimum value.
4. This is the maximum value that the parameter will change to. The number four icon is indicating that you must press the number four button to access the maximum value parameter. You can then rotate the Data Wheel to change the maximum value.

There are parenthesis in between the words Min and Max. These parenthesis will show the current value as it changes in real time.

5. There are 19 pages of parameter control assignments that can be made. Each assignment is represented as one page. Using the Next and Previous Page buttons will allow you to view, change, or delete all assignments within the currently selected Program.

Tuner

The RP21D includes a chromatic Tuner with an adjust able tuning reference, and drop tunings. Access to the Tuner is accomplished by pressing and holding the Bank Down Switch. Once in the Tuner mode, the Display will look something like this:



The Display is now telling you four things about the Tuner.

1. This is where the name of the note played will register. The question marks are an indication that no note is being played.
2. This is the Tuning reference. The number three icon is indicating that you must press the number three button in order to access the Tuning reference. You can then rotate the Data Wheel to change the Tuning reference. The Tuning reference can be adjusted from A=427 to A=453 which equals 50 cents above and below the standard A=440 reference. Below the A=427 reference, you will also find drop Tunings. The available choices are A=G#, A=G, and A=F#.
3. This is the Output Level while you are in the Tuner mode. The number 4 icon is indicating that you must press the number four button in order to access the Output Level parameter. You can then rotate the Data Wheel to change the Tuners Output Level
4. This bar will light as an indication of how close you are to the note indicated in the Display. When only the center box and the arrow above the center box are lit, you are in tune. Boxes to the right of the center box indicate that you are sharp and need to tune down. Boxes to the left of the center box indicate that you are flat and need to tune up.

Press any Footswitch to exit the tuner mode.

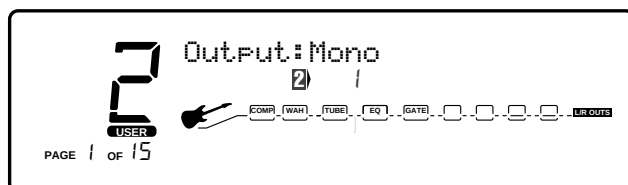
Section Four - Utilities

The Utility section of the RP21D is where you will find general assignments that affect the Outputs, Cabinet Emulator, MIDI Functions, Pedal Board Settings, Bank Naming, Factory Reset, and Pedal Calibration menus. To access the utility functions, press the utility button once. Then use the Next or Previous Page buttons to select the Utility menu that you wish to access. The Utility pages are as follows:

Output Mode

You can output the signal of your RP21D as either a Stereo or Mono signal.

1. Press the Utility button and then press either the Next or Previous Page buttons until you reach page 1 of the Utilities. The display reads:



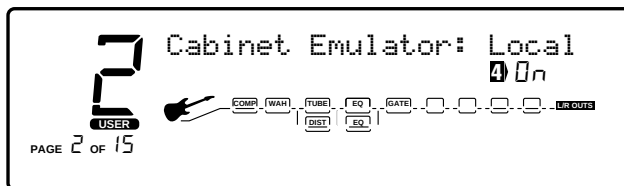
2. Pressing the number two button will access the Output parameter. You can then turn the Data Wheel to set your RP21D's output to either a Stereo or Mono signal.

Cabinet Emulation

The Cabinet Emulator in the RP21D offers you two different choices: Local and Global. The Global setting will engage the Cabinet Emulator on all Programs. Each Program can have a different Cabinet Emulator which is assigned on page two of the Master Mix parameters. The Local setting will engage the cabinet emulator on individual Programs. The thing to consider when selecting between global or local mode is whether or not you want all of your sounds affected by this change. A good time to use Global mode is when you're frequently playing in different venues (because each room always sounds different).

The procedure for selecting either the Local or Global Cabinet emulation is as follows:

1. Press the Utility button and then press either Next or Previous Page button until you reach page 2 of the Utilities. The display reads:



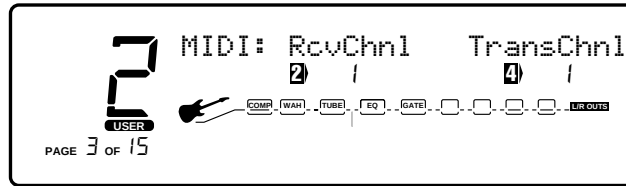
2. Access the Cabinet Emulator parameter by pressing the number four button. You can then rotate the Data Wheel to set the Cabinet Emulator to either Local On or Global On mode, or Global Off.

MIDI Channels

This option sets the MIDI Channel that the RP21D will respond to. This page sets the receive and transmit MIDI channels. The RP21D is capable of sending and receiving MIDI Program change and CC commands. MIDI channel settings include: Off, 1, through 16, and All.

To change the MIDI channel assignment, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 3 and the display reads:



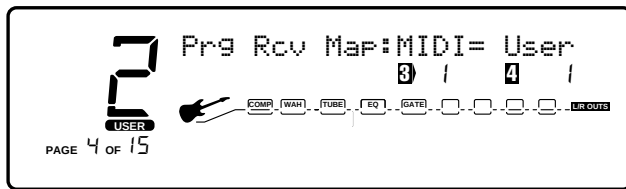
2. The number two icon indicates that you must press the number two button to access the MIDI Receive Channel. You can then rotate the Data Wheel to change the MIDI Receive Channel
3. The number four icon indicates that you must press the number four button to access the MIDI Transmit Channel. You can then rotate the Data Wheel to change the MIDI Transmit Channel.

Program Receive Map

MIDI Program Receive Mapping allows you to “map” an incoming Program change command to access a Program number different from the actual received Program number. In other words, you can send the RP21D a MIDI Program change command of 48, but the RP21D would go to Program 67 (or any Program number that you map in for Program 48). This may seem confusing, but is extremely useful when you are using multiple MIDI devices chained together.

To remap the incoming MIDI Programs, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 4 and the display will read:



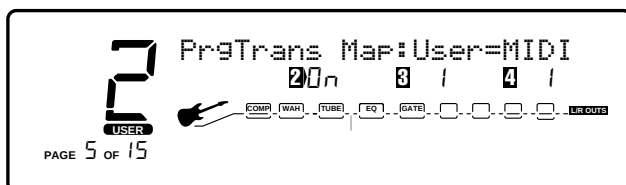
2. The number three icon is indicating that you must press the number three button in order to access the incoming MIDI Program number. You can then rotate the Data Wheel to select the MIDI Program 1 through 128 that you want to remap.
3. The number four icon is indicating that you must press the number four button in order to access the RP21D Program that the MIDI Program will call up. You can then rotate the Data Wheel to select one of the RP21D's 256 Programs that you wish to be called up when the RP21D receives the MIDI Program shown next to the number three icon.

Program Transmit Map

MIDI Program Transmit Mapping allows you to “map” an outgoing Program change command to access a Program number different from the actual Program number selected on the RP21D. In other words, you can send a MIDI Program change command of 48, even though the Program selected on the RP21D was 67 (or any Program number that you map). This may seem confusing, but is extremely useful when you are using multiple MIDI devices chained together.

To remap the outgoing MIDI Programs do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 5 and the display will read:



2. The number one icon is indicating that you must press the number one button in order to access the transmit MIDI Program change status. You can then rotate the Data Wheel to select whether or not you want the RP21D to send Program changes out.

3. The number three icon is indicating that you must press the number three button in order to access the outgoing MIDI Program number. You can then rotate the Data Wheel to select MIDI Program 1 through 128 that you want to send from the RP21D when you select the Program shown next to the number four icon.
4. The number four icon is indicating that you must press the number four button in order to access the RP21D Program that you intend to remap. You can then rotate the Data Wheel to select one of the RP21D's 256 Programs.

SysEx Channel and MIDI Merge

An easy way to think of the System Exclusive Device Channel option is to separate System Exclusive data from normal MIDI data. Each type of data has its own group of 16 channels upon which data can be transmitted. This feature will also allow individual remote control of more than one RP21D with SysEx commands.

From the Factory and in most situations, the SysEx channel is set at Channel 1.

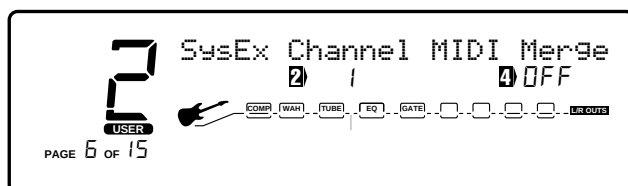
Normal MIDI data, like Program Changes, MIDI Volume, Modulation, etc. is transmitted and received on the MIDI channel designated by the setting of MIDI RECEIVE CHANNEL. SysEx data, on the other hand, is transmitted and received on the SysEx channel designated by the setting of SYSEX DEVICE CHANNEL.

This setup frees up your regular MIDI channels for other control options, and gives you the flexibility to request SysEx data from only the devices you want in your setup, whether they share the same MIDI channel or not.

MIDI Merging allows incoming MIDI data to be Merged with any MIDI data generated by your RP21D before being sent to the MIDI Out/Thru port.

To change the SysEx Device Channel number, or turn the MIDI Merge function on or off, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 6. The display reads:



2. The number two icon is indicating that you must press the number two button in order to access the MIDI SysEx Channel. You can then rotate the Data Wheel to select the SysEx Channel.
3. The number four icon is indicating that you must press the number four button in order to access the on/off parameter for the MIDI Merge function. You can then rotate the Data Wheel to select between on or off for the MIDI Merge.

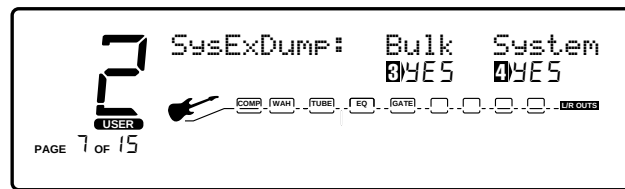
SysEx Dump

Bulk Dump: This option allows you to dump all resident Programs in memory to an external recording device, like a patch librarian, computer, or sequencer for backup, storage, or organization. This option dumps all Programs simultaneously. It does not send any RP21D Valve system information, such as SysEx Device channel or Programs maps.

System Dump: This is the option to use for dumping system data to an external MIDI or SysEx recording device. All the item settings in the Utility menu are sent using this option. Programs are not included in this dump.

To Perform either a Bulk Dump or a System Dump, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 7. The Display reads:



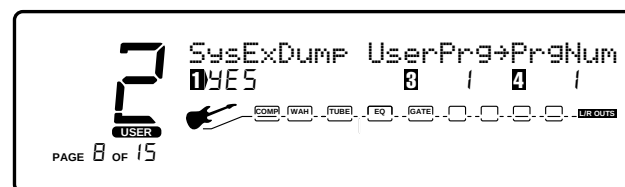
2. The number three icon is indicating that you must press the number three button in order to access the Bulk Dump function. You can then rotate the Data Wheel to initiate the Bulk Dump. You must have the MIDI out of the RP21D connected to a MIDI recorder and the MIDI recorder must be set to record before initiating the dump. The Display will briefly read " Midi Bulk Dump" followed by the number ber of bytes it is sending. It will then return to the SysEx Dump page.
3. The number four icon is indicating that you must press the number four button in order to access the System Dump function. You can then rotate the Data Wheel to initiate the System Dump. You must have the MIDI out of the RP21D connected to a MIDI recorder and the MIDI recorder must be set to record before initiating the dump. The Display will briefly read " Sending System Dump." It will then return to the SysEx Dump page.

Program Dumps

The Program Dump allows you to dump individual RP21D Programs to another RP21D or external MIDI devices like patch librarians, computers, or sequencers for backup, storage, or organization. This option allows you to select the Program to be dumped, and, when dumping to another RP21D, the Program location where you want the Program dumped.

To initiate an individual patch dump from the RP21D, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 8. The display reads:



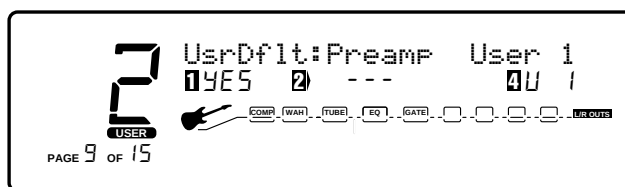
2. Press the number three button and then rotate the Data Wheel to select the Program number you want to dump.
3. Press the number four button and then rotate the Data Wheel to select the Program location where you want the Program dumped.
4. To initiate the dump, press the number one button and then rotate the Data Wheel. The Information line briefly reads "Sending Program Dump." It will then return to the SysEx Dump Page.

User Default Dump

The User Default Dump allows you to dump individual RP21D User defaults to another RP21D or external MIDI devices like patch librarians, computers, or sequencers for backup, storage, or organization. This option allows you to select the default to be dumped.

To initiate an individual Default dump from the RP21D, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 9. The display reads:

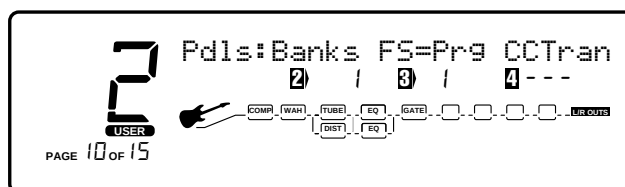


2. Press the number two button and rotate the Data Wheel to select the Effect Module whose Default you want to dump.
3. Press the number four button and rotate the Data Wheel to select the User Default you want to dump.
4. To initiate the dump, press the number one button and rotate the Data Wheel. The Display briefly reads “ Sending User Default.” It will then return to the User Default Dump Page.

Assigning a MIDI CC to Pedals

This function allows you to send MIDI Continuous Controller (CC) information out the MIDI port while the footswitch still maintains its ability to control a parameter within the RP21D. When assigned to a footswitch, the switch will toggle between CC values 0 or 127. CC numbers 0 through 127 are available. This function is only available for footswitches that have been programmed to toggle effects on and off within the RP21D. To assign the MIDI CC number which will be transmitted from the applicable footswitches, do the following:

1. Press the Utility button once, then use the Next or Previous Page buttons until you reach page 10 of the utility menu. The Display reads:

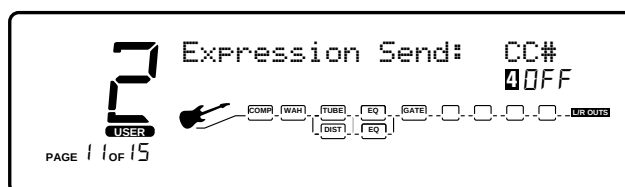


2. Press the number two button and turn the Data Wheel to select the Bank which will be used to transmit the CC commands.
3. Press the number three button and turn the Data Wheel to select the footswitch that you wish to assign a CC number to.
4. Press the number four button and turn the Data Wheel to select the CC number you wish to transmit from the footswitch.

Assigning a MIDI CC to the Expression Pedal

The Expression Pedal can act as a MIDI continuous controller for external MIDI devices which you have connected to the MIDI out port of the RP21D. You can select any MIDI CC number between 0 and 127 that you want to transmit information on. The procedure for assigning a MIDI CC number to the Expression Pedal is as follows:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 11 of the utility menu. The Display reads:



2. Press the number four button and turn the Data Wheel to select the CC number that you wish to transmit from the Expression Pedal.

Bank Names

You can assign custom names to every Bank in the RP21D. The Procedure for naming your Banks is as follows:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 12 of the utilities. The Display reads:

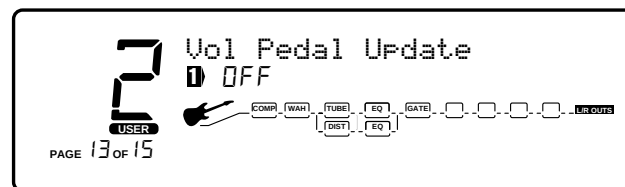


2. Press the number two button and rotate the Data Wheel to select the Bank that you wish to rename.
3. Press the number four button and rotate the Data Wheel. This will take you to the Name menu. Please see page 47 for Naming instructions.

Volume Pedal Update

The RP21D has the ability to update the position of the expression controller pedal when it is assigned to Volume within any program. This means that the volume pedals position will correspond to the volume setting after changing the ProgramTo enable this feature, the procedure is as follows:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page 16. This display should look like this:



2. To enable this Volume Pedal update rotate the Data Wheel until the display says On.

Now in any Program where the expression pedal is assigned to the Volume parameter, the expression pedal's current position will be updated when that preset is selected.

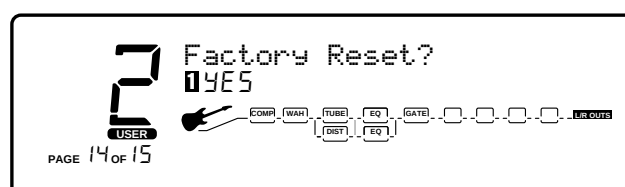
Factory Reset

This function resets the RP21D to its original factory settings. This procedure will erase all custom user Programs, Defaults and Utility settings.

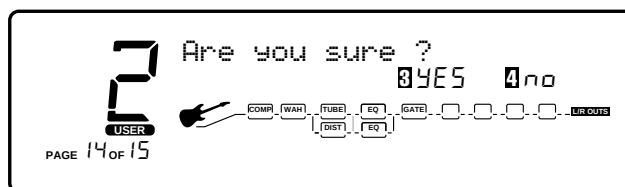
ATTENTION: This procedure will erase all user settings in the RP21D. Be sure you want to erase the memory and start fresh before continuing with this procedure.

To perform a Factory Reset, do the following:

1. Press the Utility button once. Use the Next or Previous Page buttons until you reach page13 of the utility menu. The Display reads:



2. To initiate the Reset, press the number one button. The Display reads:

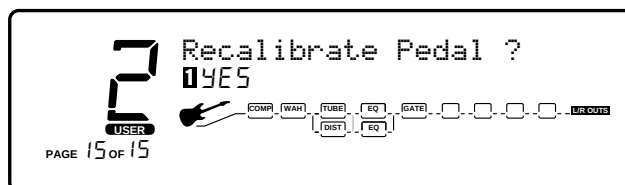


3. This is your last chance to change your mind. If you want to abort the Reset procedure, press the number four button. If you are sure that you want to reset all user settings, press the number three button. The display will briefly show “Resetting...” and take you to the Pedal Calibration menu. See the following Utility menu for Pedal Calibration instructions.

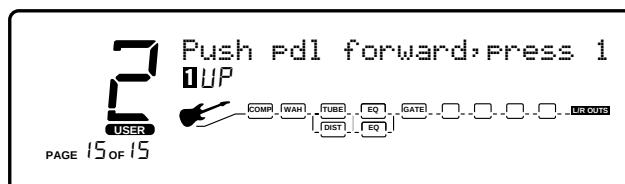
Recalibrating the Expression Pedal

Occasionally, you will need to recalibrate the Expression Pedal on the RP21D. This will be indicated when the Expression Pedal does not adjust its assigned parameter to the full minimum and maximum programmed values. You will also have to recalibrate the pedal after performing a Factory Reset procedure. The procedure for recalibrating the Expression Pedal is as follows:

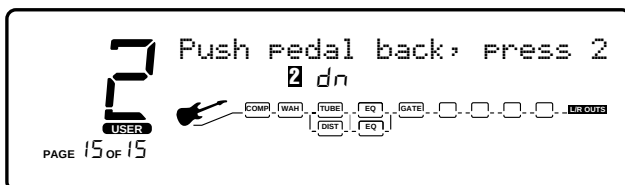
1. Press the Utility button once. Use the Next and Previous Page buttons until you reach page 14. The Display reads:



2. To initiate the Pedal recalibration, press the number one button. The Display reads:



3. At this point, rock the Expression Pedal all the way forward (toe down) and press the number one button once. The Display now reads:



4. Rock the Expression Pedal all the way back (toe up) and press the number two button. The Display will return to the start of the Recalibrate Pedal menu.

You may exit the Utility menu at any time by pressing the Program button.

Section Five - Appendix

RP21D Factory Program List

Showcase

1. Dry Saturated Tube
2. Series Chorus/Detune
3. Warm Sweet Solo
4. Phaser in Space
5. Power Wah

Signature

6. Cliff Notes of Dover
7. Run Like Heck
8. Big Band Rockabilly
9. Live Strikes
10. Angus in the House

Pseudo Seamless

11. Clean Funk}}{Big Solo
12. Dirt Phase}}{EasternDly
13. Ping Pong Clean}}{Dirty
14. Lead Over Chord
15. Seamless Delay

Morph

16. Clean Chorus>>DistOctav
17. Slappy Pan>>ThrashPhase
18. Meta-Morph Effects
19. Clean Chorus>>12 String
20. Octave Thump>>Phase Pan

Dual/Ster Preamp

21. L)Tube R)Fuzz
22. Clean/Crunch Pong
23. L)Dirt R)Clean
24. Panning Preamp Solo
25. Dirty Clean Squeeze

Dry Preamp 1

26. Warm Rhythm
27. Dual Tone
28. Bright Twin
29. Custom British Stack
30. Rocket Mang

Dry Preamp 2

31. Death Metal Scoop
32. Smooth Solo
33. Super Fuzz
34. Rock Tube
35. Tube Solo

Blues

36. Texas Blues
37. Sad Ol' Slide (ExpPdl)
38. Big Blues Solo
39. Riviera Pair O' Dice
40. Cannonball Shuffle

Country

41. Kentucky Fried Picken
42. Desert Campfire
43. Pedal Steel
44. Dirty Lil' Ditty
45. Harmony (D Mixolydian)

Metal

46. Moshin' Detune/Delay
47. 2-Tone L/R Grinder
48. Flangey Stack
49. Clean Ballad
50. Pedal Phase to the Metal

Modern/Alternative

51. Clean Pong Phase
52. Panning Wah
53. Raw Feeley
54. Get Da Funk
55. Whammy Child

Studio

56. Huge Chorus/Delay
57. Hollywood Solo
58. Power Stack
59. Compressed Mod/Delay
60. Bluish Lead

Vintage

61. Trem-O-Surf
62. Fuzztronic
63. Rockin' Analog Delay
64. Electric Sitar
65. '70's Direct Fuzz

Clean

66. Crisp Clean
67. Warm Panner
68. Clean Thick Detune/Delay
69. Clean Mod-Delay
70. Phase w/Moving Delay

Jazz/Fusion

71. Classic Jazz Room
72. Progressive Solo
73. Huge Chorus Swell
74. Modern Fusion Solo
75. Jazzy Chorus

For Acoustic

76. New Age Acoustic
77. Simulated 12 String
78. Chorus/Delay w/PEQ
79. Acoustic Phase/Panner
80. Stereo Detune/Reverb

Dynamic Effects

81. Ducking Delay Solo
82. Light Touch Chorus
83. DynoWah
84. Schizo Phase
85. Strum and Wait

Sound On Sound

86. Sound on Sound 1>4>5
87. Sound on Sound Jam
88. Space Chord
89. Wacko Whammy
90. Guitar Organ

Special FX

91. Hold That Note
92. Hypnotic Phase
93. 60's Sci-Fi-Movie
94. Look, Goodzilla!!
95. Auto Morph

96. Just Riffin'
97. Do The Time Warp Again
98. Flangey Triplet
99. Super Clean
100. Edge of the Earth
101. RIP In
102. Schwankin
103. Wa-Hammy
104. Copy Cat
105. Feel It
106. Kerrang
107. Wah-T
108. What The??
109. Mello Yella
110. Dragster
111. Deluxe
112. D-Tone
113. Phaso The Clown
114. Chord Sweep `n Pan
115. Guitarists in the Myst
116. Planetarium
117. Dirty Echos
118. Cheese Farmer
119. Hurt Me Plenty
120. Valhalla Solo
121. Big Bad Rhythm
122. Every Breath You Fake
123. Foxy Mama
124. Lemonlite
125. 2 Preamps At Once
126. Rhythm Dude
127. 2-Tone
128. Bright Spank

Specifications

Input Section

Connector: 1/4" Unbalanced
 Nominal Value: -8 dBu
 Maximum Level: +10 dBu
 Impedance: 470 ohms

Output Section

Connector: (2) 1/4" TRS Impedance Balanced
 Nominal Level: +4 dBu
 Maximum Level: +18 dBu
 Impedance: 50 ohms

Digital Section

A/D Converter: 20 bit 128x Oversampled
 D/A Converter: 20 bit 128x Oversampled
 Sampling Rate: 44.1kHz.
 Output: S/PDIF

DSP Section

Architecture: Static-Dynamic Instruction Set Computer (S-DISC II™)
 Digital Signal Path Width: 24 bits (144.5 dB)
 Internal Data Path: 48 bits (289 dB)
 Dynamic Delay Memory: 256k x 24 bits (5.94 seconds)
 Static Delay Memory: 256 24-bit registers (6.55 milliseconds)
 Data ALU Processing: 10.0 MIPS
 Address ALU Processing: 15.0 MIPS
 Multiplier Size: 24 bits x 24 bits

General

Frequency Response: 20 Hz to 20 kHz +0, -3 dB
 S/N Ratio: Greater than 90 dB: ref= max signal, 22 kHz measurement bandwidth
 THD: Less than 0.04% (1 kHz)
 Tube: 12AX7
 Tube Plate Voltage: 145 Volts
 Factory Programs: 128
 User Programs: 128
 Dimensions: 24" W x 8.25" D x 2.25" H
 Net Weight: 12 lbs.
 Shipping Weight: 13.5 lbs.

Function...		Transmitted		Recognized		Remarks
<i>Basic Channel</i>	<i>Default Channel</i>	<i>X</i>	<i>X</i>	<i>1-16</i>	<i>1-16</i>	<i>Memorized</i>
<i>Mode</i>	<i>Default Messages Altered</i>	<i>X</i>	<i>X</i>	<i>Mode 2, Mode 4</i>	<i>Mode 2, Mode 4</i>	<i>Memorized</i>
<i>Note</i>	<i>True Voice</i>	<i>X</i>	<i>N/A</i>	<i>X</i>	<i>X</i>	
<i>Velocity</i>	<i>Note ON</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	
	<i>Note OFF</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>After Touch</i>	<i>Key's</i>	<i>X</i>	<i>X</i>	<i>0</i>	<i>X</i>	
	<i>Ch's</i>	<i>X</i>	<i>X</i>	<i>0</i>	<i>X</i>	
<i>Pitch Bender</i>		<i>X</i>		<i>X</i>		
<i>Control Change</i>		<i>X</i>		<i>0</i>		<i>1*</i>
<i>Preset Change</i>	<i>True #</i>	<i>X</i>	<i>N/A</i>	<i>0</i>	<i>0-127</i>	<i>2*</i>
<i>System Exclusive</i>		<i>0</i>		<i>0</i>		<i>See SysEx (see appendix)</i>
<i>System</i>	<i>:Song Pos</i>	<i>X</i>		<i>X</i>		
	<i>:Song Sel</i>			<i>X</i>		
<i>Common</i>	<i>:Tune</i>	<i>X</i>		<i>X</i>		
<i>System</i>	<i>:Clock</i>	<i>X</i>		<i>X</i>		
<i>Real Time</i>	<i>:Commands</i>	<i>X</i>		<i>X</i>		
<i>Aux</i>	<i>:Local ON/OFF</i>	<i>X</i>		<i>X</i>		
<i>Mes-</i>	<i>:All Notes Off</i>	<i>X</i>		<i>X</i>		
<i>sages</i>	<i>:Active Sense</i>	<i>X</i>		<i>X</i>		
	<i>:Reset</i>	<i>X</i>		<i>X</i>		
<i>Notes</i> <i>1* Each Parameter can be linked to any control change. These assignment tables are stored in memory.</i> <i>2* For Preset map 1-128 (Preset Change can be mapped to Factory Presets, User Presets, or Bypass function).</i>						

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

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

0 : Yes
X : No



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