



## Pedal Palette Features and Benefits

### True Bypass

Passive guitar pickups are low level, high impedance sources. This means they are easily loaded down by all the various cable and connections required when using multiple effect pedals, resulting in a loss of high frequency response.

Many effect pedals on the market employ circuitry that is active even when the effect is turned off. While this design allows for silent switching, the bypass circuitry typically has high harmonic distortion and minimal headroom, both of which can greatly affect the tone and dynamics of your playing. Other pedal designs use a bypass scheme where the effect's input circuitry remains connected even when bypassed. This type of pedal continues to load the guitar signal even when the pedal is switched off.

These types of pedal bypass issues have a cumulative effect. And, with several pedals in your effect chain, they can result in a loss of tone, dynamics, and high frequency response - even when all your pedals are OFF.

A true bypass pedal will completely disconnect all circuitry from the guitar signal and will route the pedal input directly to the pedal output. This provides the most pure signal path. However, even if all the pedals in your effect chain are true bypass, there still exists the possibility of poor signal caused by all of the cables, connectors, and switches that your guitar signal must travel through.

The Pedal Palette is a true bypass switcher. The advantage to having all of your effect pedals connected through the Pedal Palette is that, when all of the pedal loops are switched off, your guitar signal goes directly from the input jack to the output jack, bypassing all of the cables, connectors and pedals in the effect chain.\* In order to achieve a straight wire type of true bypass, the Pedal Palette utilizes relays. This provides the most transparent bypass possible. However, because relays are mechanical switches, it is understood that they inherently cause some noise when switching.

\* When the Input Buffer and Tails switches are off.

## Series Connection

Guitar effect pedals are typically wired in what is known as a configuration. What this means is that the guitar is plugged into the first pedal, the output of the first pedal goes to the input of the second pedal, the output of the second pedal goes into the third pedal, etc. [see Figure 1]. This configuration makes it simple and easy to see what the signal path is. However, the series configuration is limited in several ways. The series order of the effects is fixed and cannot be changed. And, the effects cannot be blended or mixed. Digital multi-effect processors have long been able to obtain more complex and flexible routing and mixing capabilities. And, recording engineers will often use multiple effects mixed in parallel to create lush and complex soundscapes. With the Pedal Palette it is now possible to obtain these types of results with analog routing and mixing for your favorite pedal effects.

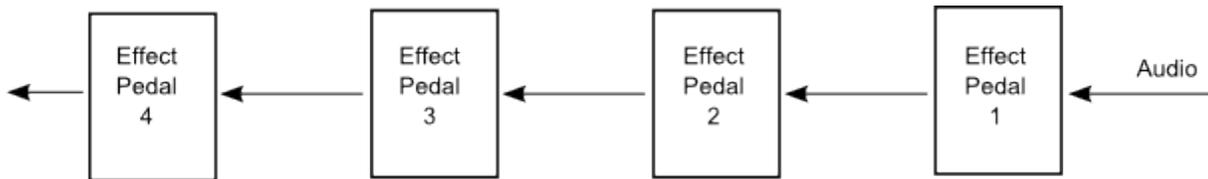


Figure 1: Series configuration

## Order Swapping

Typically, the order of your pedals in your effect chain is determined by trial and error, and through general consensus. However, many times an alternate order of pedals can result in an equally useful and effective sound effect. The Pedal Palette gives you the ability to swap the order of your effects in real-time. In some cases, this can result in drastic differences. This is particularly true with tone or frequency modifying effects such as distortion, wah, or EQ pedals. In other cases, the result is more subtle, where one effect becomes more predominate than the other(s). Modifying effect pedal order is great when searching for just the right sound, and it greatly expands your available sonic options.

The top row of footswitches, labeled SWAP, allow the order of the effects to be changed. The right-most SWAP switch reverses the order of loops 1&2. The left-most SWAP switch reverses the order of loops 3&4. The middle SWAP switch reverses the order of the loop 1&2 section and the loop 3&4 section [see Figure 2]. This method allows many possible order combinations while still being intuitive and easy to understand. The YELLOW swap status LEDs provide simple visual feedback, making it ideal when swapping live and in real time.

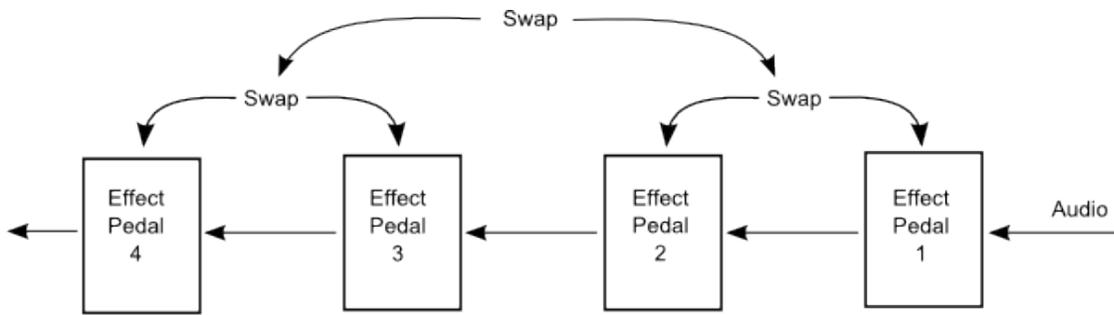


Figure 2: Series configuration - Order Swapping

### Parallel Mix Bus

Parallel mixing has long been a useful method of achieving a desired sound effect. It is a standard method used with reverbs and delays. All reverb and delay pedals have some type of parallel mixer built into them. The signal seen at the input to the effect, referred to as the signal is mixed with the delayed output of the effect (the signal). Some pedals convert the direct signal to digital and mix it with the signal digitally before converting back to analog. Other pedals keep the direct signal analog and mix analog. In many cases the mix is controlled through a knob, which balances the amount of signal with the amount of effected signal.

The parallel mix bus in the Pedal Palette works in a similar way, by taking the pedal's output at the loop return jack and mixing it with the signal obtained within the Pedal Palette. In this case, however, since the Pedal Palette has more than one effect (loop), the signal is not always the signal at the input jack. It could also be the signal output from any active SERIES mode loop(s).

### Setting a Loop in Parallel Mode

To configure a loop in parallel, set the loop MODE slide switch to PARALLEL. Once the switch is set to PARALLEL, the loops send signal is split and also sent to the following loop's send jack. The return signal of the loop will now be routed to the parallel mix bus instead of to the next loop's send. See Figure 3 below showing the signal routing when a loop is in parallel.

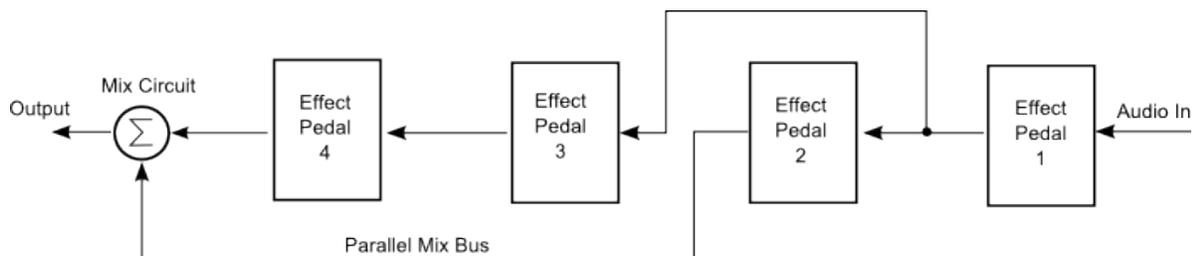


Figure 3: Parallel configuration : Effect Pedal 2 is switched to PARALLEL mode.

## **Level and Phase Invert Controls**

When a loop is set to PARALLEL mode, there are two additional controls, which can be used to set the desired blend of the effect. The LEVEL control is used to set the amount of effect return that is mixed in. The PHASE switch inverts the phase of the effect return. Some effect pedals will invert the phase of the signal such that their output is out of phase with their input. With these types of effect pedals, it will be necessary to use the INVERT position to correct the phase before mixing. Other pedals may have some phase shift, but may not be completely out of phase. For these reasons, some experimentation with the PHASE switch settings is recommended. If the effect gets weaker when the LEVEL control is turned all the way clockwise, this is an indication that the effect is out of phase, and the PHASE switch should be toggled. In any case, use what sounds best.

## **Parallel Reverb and Delay**

There are several practical advantages to using the Pedal Palette with delay and reverb pedals: The direct guitar tone remains unity gain and analog. Since your sound is no longer obtained from the effect pedal, your guitar signal will not be converted to digital and back again (as some pedals do). Also, your guitar signal level remains consistent and it is not modified and re-mixed at each reverb and delay pedal in the chain, which can add noise.

Delay and reverb tails, or echoes, can continue to decay naturally after the effect is switched off. Delay and reverb pedals that are true bypass must abruptly cut-off the reverb and delay tails when switched off. With the Pedal Palette, their echo tails are allowed to fade out [see Tails Control section page 11].

Multiple delay and/or reverb pedals active in an effects chain can all be fed the same input signal. Using both a delay and a reverb on a source is a common technique in recording studios. However, the same result cannot be achieved in a typical series pedal effect chain. This is because, in the series chain, one of the two effects must always come first, putting its imprint on the sound before reaching the second effect. With the Pedal Palette, it is now possible to send the same input signal to both the reverb and delay effects, and then mixing their outputs together with the signal using the parallel mix bus.

When using delay and reverb pedals in PARALLEL mode with the Pedal Palette, it is important to set the setting on the pedal(s) to 100%. The blending will now be controlled with the loop's LEVEL control on the Pedal Palette. In some pedals, there may be an internal setting for which can also achieve the same result.

## **Creative Uses of Parallel Mixing**

Parallel effects mixing is widely used in recording studios as a creative tool for blending all types effects to achieve a more distinctive soundscape. Many of these same

techniques can be applied using guitar pedal effects with the Pedal Palette. For example, the intensity of a chorus or flanger can be easily controlled by using a parallel mix bus to blend the amount of effected signal with the direct signal. Mixing a compressor in parallel can fatten the sound, while still retaining dynamics, by blending the direct tone with a heavily compressed tone. Likewise, a distortion pedal can be blended with a clean tone to create a bigger, more dynamic sound.

When used in combination with effects order swapping, the parallel mix bus can yield some interesting results. Many times, parallel mixed effects, such as delay, are used at the end of the chain. This allows additional series effects to be inserted in front of it, with the result being that the delay receives the affected sound. In the Pedal Palette, if the order is swapped, the result is that the delay is now fed the clean guitar signal and the series effect is also fed the clean guitar signal, creating a dual signal path. The outputs from both effects are then mixed via the parallel mix bus. With some experimentation, many unique results can be achieved [see Figure 4].

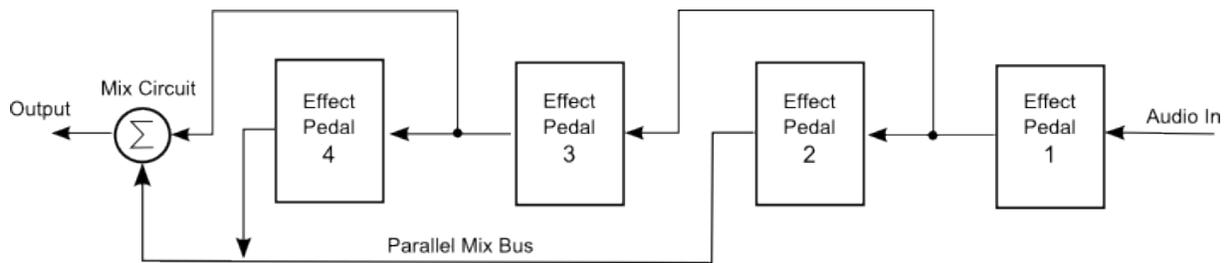


Figure 4A: Parallel configuration:  
Pedal 2 and Pedal 4 are PARALLEL

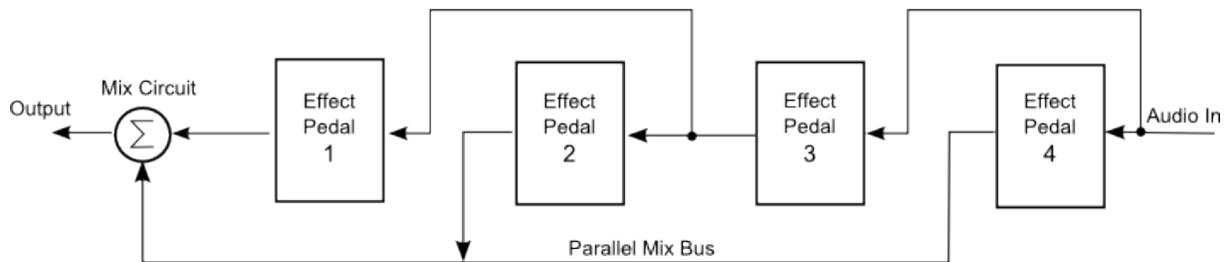


Figure 4B: Parallel configuration:  
Pedal 2 & Pedal 4 are PARALLEL, Pedals 1&2 swapped, Pedals 3&4 swapped, section 1/2 & 3/4 swapped.

## Tails Control

When using reverb and delay pedals, it is often desired to have the tails, or echoes, decay naturally after the effect is shut off. True bypass pedals inherently cut-off the echoes abruptly when the pedal is turned off. With the TAILS control on the Pedal Palette, the send to the pedal will be muted when the loop is off. But, the pedal return will remain connected to the mix bus, allowing the residual echoes to ring out. This is a very useful feature when used with a reverb or delay pedal, however it can be

problematic when using the parallel mix bus with pedals that do not have echoes, and which may be noisy. For this reason, each effect loop can be individually configured for tails IN or OUT.

### **Individual Loop Tails Control**

Individual TAILS control for each loop is configured in SETTINGS MODE. To enter SETTINGS MODE, press the SWAP 1-2 footswitch and the SWAP 3-4 footswitch simultaneously. The display will read SE and the BLUE preset LEDs will sequence. To enter SETTINGS - TAILS, select the A footswitch. The display will now read  $\infty$ L and the current TAILS setting for the loops is displayed by the RED loop status LEDs. The loop on/off footswitches are used to set the TAILS mode for each loop. When the RED loop status LED is lighted, the TAILS for that loop is IN. When the LED is off, TAILS are OUT. To exit SETTINGS - TAILS, press the STORE/EDIT button once to return to the SETTINGS main menu, and press STORE/EDIT a second time to return to the current operating mode.

### **Master Tails Switch**

The top panel TAILS switch acts as a master switch for tails control. When the TAILS switch is set to IN, and there is at least one loop configured in PARALLEL mode, the mix bus will always be active in circuit. When the TAILS switch is OUT, the mix bus is active in circuit only when a PARALLEL mode loop is active, and the parallel mix bus is bypassed when no PARALLEL mode loops are active.

### **Buffering**

The Pedal Palette can be configured to be completely true bypass when all loops are off. This is the case when the input BUFFER and TAILS switches are set to OUT. However, there are some configurations which require the use of buffers in the circuit, such as when mixing in parallel, or when a loop is active. The Pedal Palette is designed such that any buffering required for a series configured signal path is done via low distortion, discrete, Class A circuitry. For the parallel mix bus, a high quality, low noise opamp circuit is used to achieve maximum headroom and low distortion.

The optional input buffer is a low distortion, discrete, JFET input, Class A circuit. It can be used, when desired, to convert a high impedance signal source (such as pickups) to low impedance, thereby eliminating the effects of capacitive loading and minimizing noise that may be caused by long cable runs.