PLUS PEDAL

SUSTAIN UNIT FOR ALL MELODIC INSTRUMENTS

USER'S MANUAL

The PLUS Pedal was created by a small, but dedicated team of engineers, musicians and, above all, friends. We named this team GAMECHANGER AUDIO in order to make one thing absolutely clear – we are not interested in building "boutique" overdrives or gluten-free delay pedals.
Unusual, innovative and daring music technology – that's what excites us.

We wish you a fantastic journey and we hope this pedal changes the way you approach your instrument – it sure happened to us ;)

PLUS PEDAL TEAM

G A M E C H A N G E R | A U D I O

THE BASICS:

The PLUS pedal is a new kind of audio processing engine that offers piano-style sustain/sostenuto effects for electric guitars and all other melodic instruments.

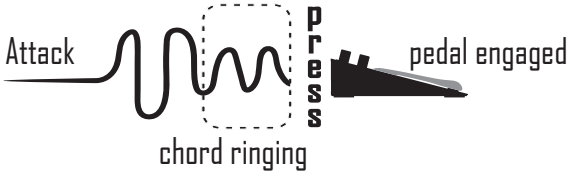
- For best results we ask you to place the PLUS Pedal FIRST in your signal chain.

- Make sure that the PLUS Pedal is connected to a suitable power supply unit that can ensure at least 200mA (9V DC Center Negative).

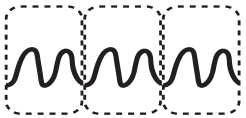
How it works:

The PLUS Pedal does not use oscillators or filters to synthesize sounds!
Instead – it produces sound using the real signal from your instrument. When the PLUS is on – it constantly records all audio signal coming from your instrument, and therefore – as soon as you press the foot-pedal it is able to immediately spring into action and start analyzing the most recent audio event – such as a strummed chord, or a separate note on a wind instrument.

In this simplified illustration we see that the PLUS Pedal has identified three distinct elements for this particular strummed chord:



The PLUS Pedal will now proceed to create a "usable loop" out of the ringing part of the chord.



Think of it as a "Smart Looper" that only catches the second half of each note or chord you play and samples that short snippet of sound into a seamless, continuous loop.

REAL TIME AUDIO SAMPLING:

This method of sound synthesis is called Real Time Sampling and it was developed specifically for PLUS Pedal by Gamechanger Audio.

"Real Time Audio Sampling" ensures that each sustained note or chord will retain the exact character of your instrument and faithfully reflect the dynamics of your playing style. It also makes PLUS Pedal compatible with any type of melodic instruments, such as brass or woodwinds, all string instruments, and even vocals. Use a standard microphone (see sect. "Microphones") to produce polyphony in real-time and create complex voice leading like never before.

Real Time Sampling is also responsive to various playing styles – create continuous layers of sustain incorporating vibrato, bends, harmonics,
trills and other dynamic playing techniques. You can also use your whammy bar, play with a slide or experiment with amp feedback or noises – the PLUS Pedal will capture all of these tonal nuances and turn them into a continuous sound.

Using the Foot-pedal:

The quality and resolution of the WET signal produced by the PLUS Pedal will always be determined by the amount of time between the attack of the chord/note and the pedal being pressed down.

For a synthetic/distorted sound – follow the note attack quickly with the foot-pedal.

For a smoother, more detailed tone – allow a longer interval between the note attack and the foot pedal.

Each note will be sustained for as long as the pedal is pressed down, and once you let go of the pedal, the sustained note/chord will start decaying according to the value of the "TAIL" setting (see section Knobs and Controls).

1) GRADUAL control
The foot-pedal does not always have to be pressed all the way - there is a distinct middle position, which requires only a light touch. This middle position is indicated by the PLUS Pedal's main LED – you will see that it has 3 levels of brightness: off (standby), half, and full. In the middle-press mode, the sustained tones produced by the PLUS Pedal will be slightly muffled and lower volume.



We encourage you to go back and forth between a half-press and a full press to adjust the volume and tone of each sustained layer on the fly.

2) Short tap
A short Full tap of the foot-pedal will act as a kill switch and remove all layers of sustain currently active.



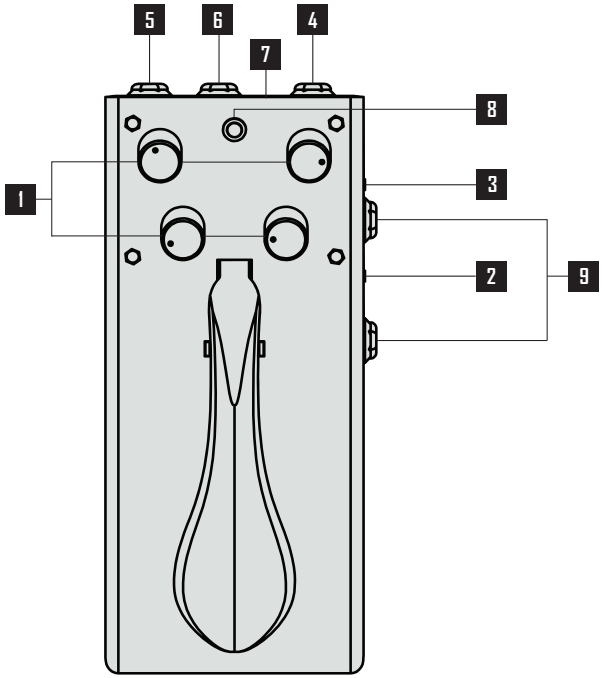
A short half-press of the foot pedal will only remove the last recorded layer of sustain.



Depending on the value of the TAIL knob and other settings, the PLUS Pedal allows you to stack and sustain up to 5 sounds, but bear in mind that each new note or chord you'd like to sustain will require a separate foot-pedal input.

FEATURES

1. 4 external rotary control knobs - adjust the dynamic properties of the WET signal generated by PLUS Pedal. (see Section "Knobs And Controls")
2. 1 two-position slide switch, labeled "SINGLE and GROUP": Lets you go between two distinct modes of playing (see Section "Single mode and Group mode")
3. 1 two-position slide switch labeled "SPLIT and MIX": Lets you isolate the WET only signal in the PLUS Pedal's main output.
4. One ¼ inch Main Input
5. One ¼ inch Main Output
6. One ¼ inch Dry Only Output/Footswitch input.
7. One 9V DC (center negative) power supply input (5.5 x 2.1 mm)
8. Indication LED (two brightness stages)
9. Two ¼ inch jack inputs for Effects Loop (labeled Send an Return)



KNOBS and CONTROLS:

BLEND:

Controls the volume of the WET Signal produced by the PLUS Pedal.

The medium "12 o'clock" position (indicated by a special indent in the potentiometer's path) represents an even volume between the input signal and the WET signal, but, this can vary with different instruments, or playing styles.

RISE:

Sets the fade-in speed of all new sustain layers, generated by the PLUS Pedal.

A minimum setting will let you bring in new tones instantly, whereas the maximum setting will result in extended gradual swells. In our experience – the sweet-spot for a smooth transition between your instrument and the generated tone is somewhere between 9 and 12 o'clock, whereas longer settings are excellent for creating soundscapes and cinematic ambiance.

TAIL:

Lets you adjust the amount of spillover signal after you release your foot from the pedal.

When the TAIL knob is set to zero there will be no spillover signal – the sustained tone will cut out instantly as you release your foot from the pedal. A 9 o'clock setting will produce just enough spillover signal to create smooth transitions between different chords. This is useful when you are stepping outside of diatonic harmonies.

Setting the TAIL knob above 12 o'clock will result in long, gradual fade-outs, thus giving you enough time to start building multiple layers of chords – sampling a new chord while the previous one is still ringing.

When TAIL is set to Maximum (infinity sign) – Each layer of sustain will keep ringing infinitely even after the pedal has been released. As before – you can add up to 5 new layers on top of each other to create very rich polyphony.

When all 5 slots are filled up – each new slot will be blended in on a rotational basis – slot number 6 will replace the 1st slot; slot 7 replaces the 2nd slot, and so on.

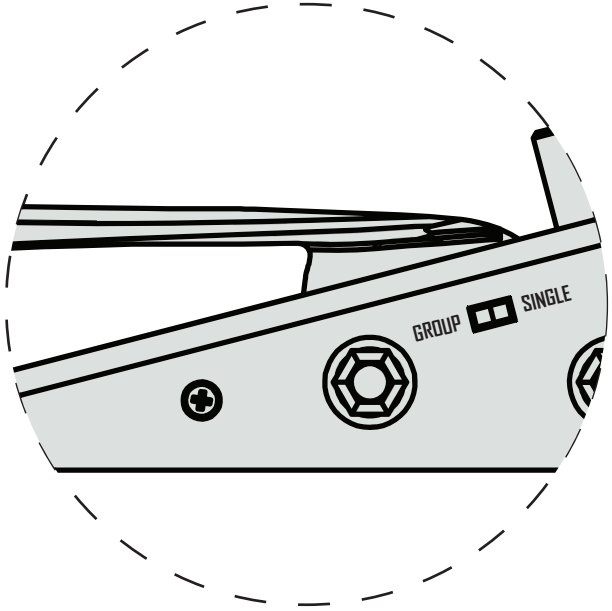
(NOTE)
The maximum number of slots slots can be adjusted in "GROUP mode" -
let's take a little detour:

SINGLE MODE and GROUP MODE

When in Single mode: holding down the foot-pedal will allow you to sustain one (most recent) note/chord. All previous audio slots will continue fading out according to the speed set by the TAIL knob.

However, In GROUP mode – pressing and holding the foot-pedal lets you hold the whole group of audio layers currently active.

For example – you can use a medium TAIL Setting to create a quick three note arpeggio and then just continue holding all three layers by keeping the foot-pedal pressed down.



SUSTAIN

SUSTAIN is a special knob that changes its functionality when you switch from Single mode to Group mode.

In SINGLE mode – the SUSTAIN knob allows you to control the behavior of the hold-function (while the foot-pedal is pressed down).

When set to minimum, it will emulate the natural decaying properties of a ringing string – gradual reduction of high frequencies. In our experience, this is incredibly useful when playing jazz, blues, and classical music.
Whereas when set to ∞ the SUSTAIN knob will keep the sustained note/chord completely static for as long as the foot-pedal is pressed down, without applying any frequency filters.

In GROUP mode – the SUSTAIN knob allows you to reduce the number of layers allowed simultaneously – you can choose from 1 to 5 layers (see drawing below). That means – Even if you are playing with a long TAIL – setting the SUSTAIN knob to minimum will limit the maximum number of sustained sounds/layers to just 1 single layer. This is indicated by the main LED, which will produce a single flash when the SUSTAIN knob is turned all the way down.

If you'd like to use two circular layers, turn the SUSTAIN knob to around 10 o'clock until you see two quick flashes, and so on..

***Any tone and dynamics settings achieved with the SUSTAIN knob in the SINGLE mode will be applied to all layers in the GROUP mode.**



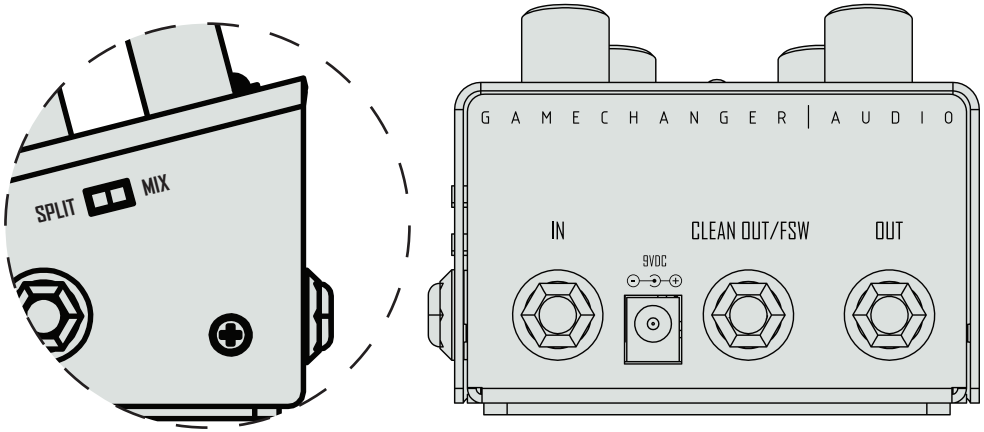
Here the PLUS Pedal will be limited to only one sustain layer. Even if TAIL is turned to max - you will not be able to create overlapping layers.



Now there are up to 5 layers of sustain available - just as in SINGLE mode, but keep in mind that in GROUP mode - holding down the footpedal will keep all active layers sustained, as opposed to just the most recent one..

OUTPUTS and SPLIT/MIX switch

The PLUS Pedal features two ¼ inch output jacks labeled "OUT" and "CLEAN OUT/FSW". There is also a toggle switch on the Pedal's side, labeled SPLIT & MIX.



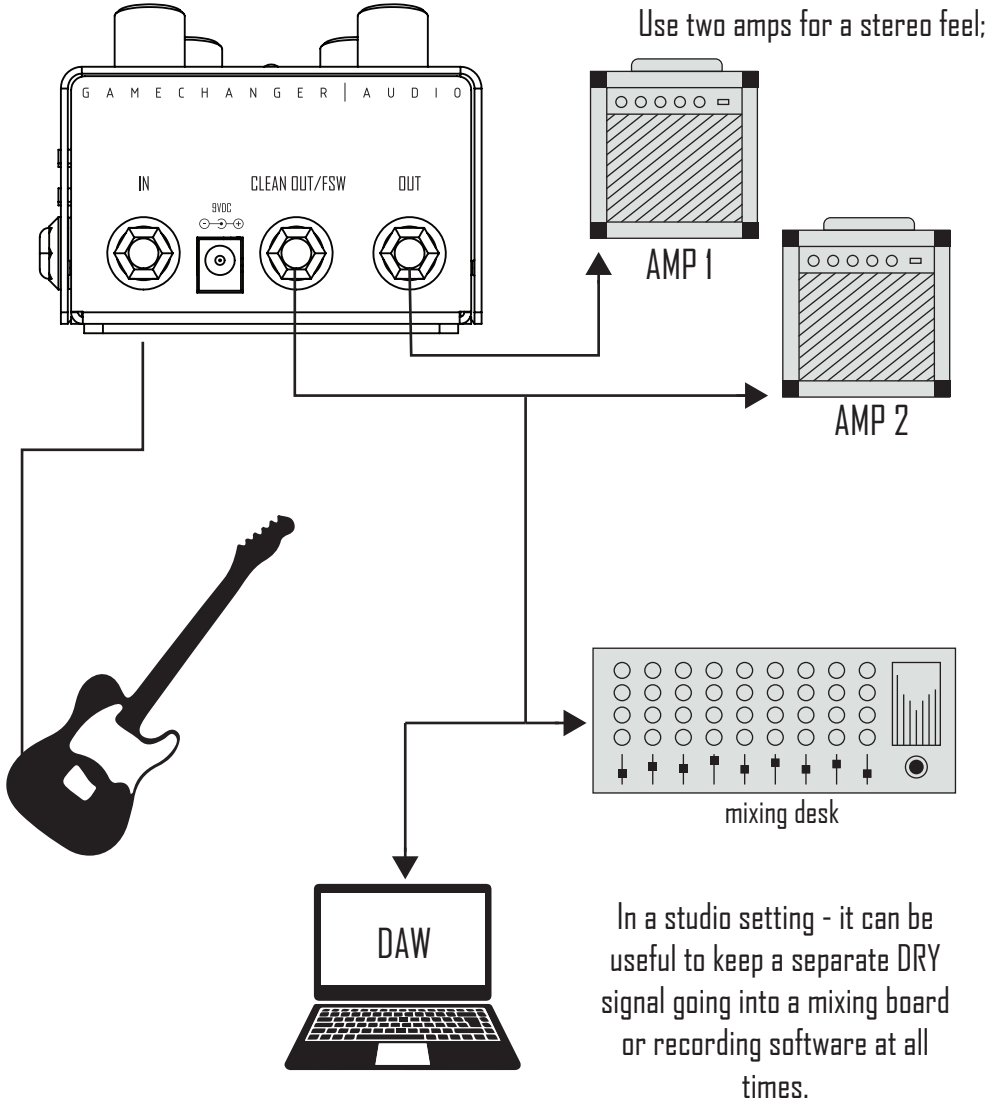
"OUT" is the PLUS Pedal's main output which can send two kinds of signal:

1) the combined DRY signal coming from your instrument with the WET signal, this is the PLUS Pedal's most commonly used mode and it can be activated by setting the above-mentioned toggle switch to "MIX"

2) only the isolated WET signal generated by the PLUS Pedal. This way your instrument's DRY signal will be muted, but you will still be able to produce sustained tones as before, by using the foot-pedal.

This mode of playing is called "WET only" – and it comes in very handy when creating soundscapes, cinematic ambiance and other unworldly sound effects. The WET only mode can be activated by positioning the toggle switch to "SPLIT".

The second output, labeled "CLEAN OUT/FSW" sends out the unaffected Dry signal from your instrument at all times. Thanks to this dual output system the PLUS Pedal offers a lot of diversity when it comes to setting up your signal chain and creating stereo effects. The "CLEAN OUT/FSW" output also doubles as an input for the WET Only Footswitch.

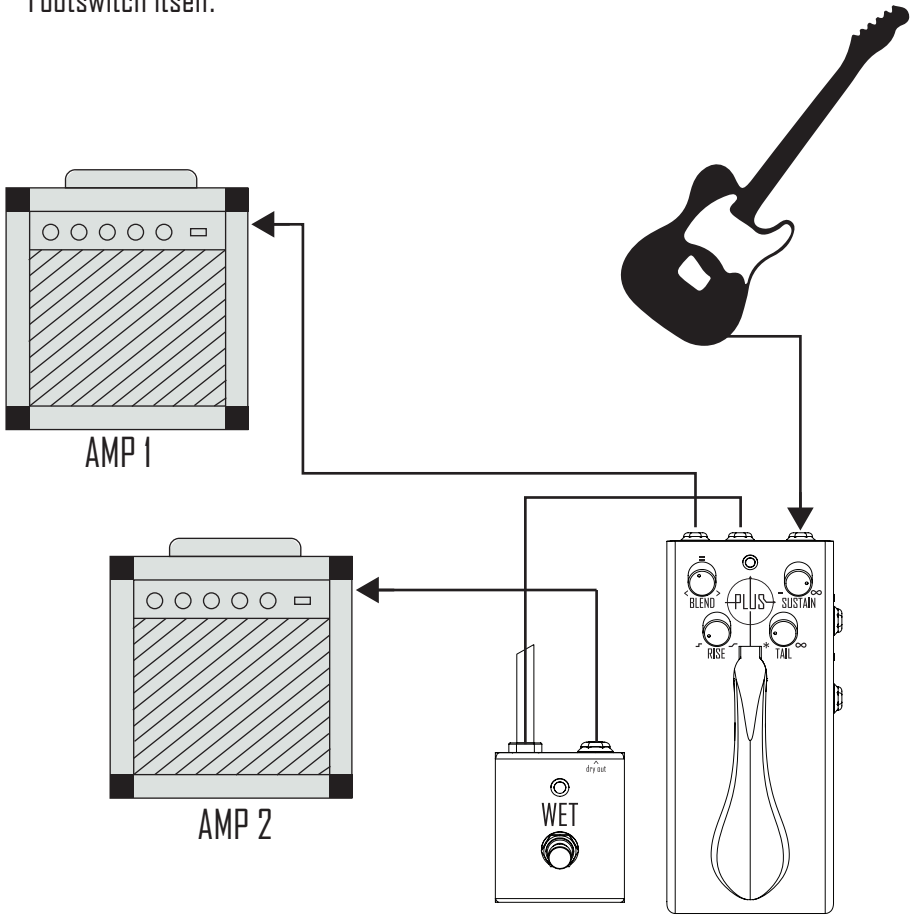


In a studio setting - it can be useful to keep a separate DRY signal going into a mixing board or recording software at all times.

FOOTSWITCH

The WET Only Footswitch serves as a remote foot-controller that bypasses the SPLIT & MIX toggle switch on the PLUS Pedal's side panel, thus letting you switch in and out of the WET Only mode on the fly. This flexibility allows you to build up a rich layer of ambient sound effects and then quickly unmute your instrument and return to playing on top.
(Note: Switch for OUT 1 must be set to MIX in order to use the footswitch.)

When using the WET Only footswitch (plugged into "CLEAN OUT/FSW"), you can still access the DRY only signal through a special DRY OUT output built into the Footswitch itself.

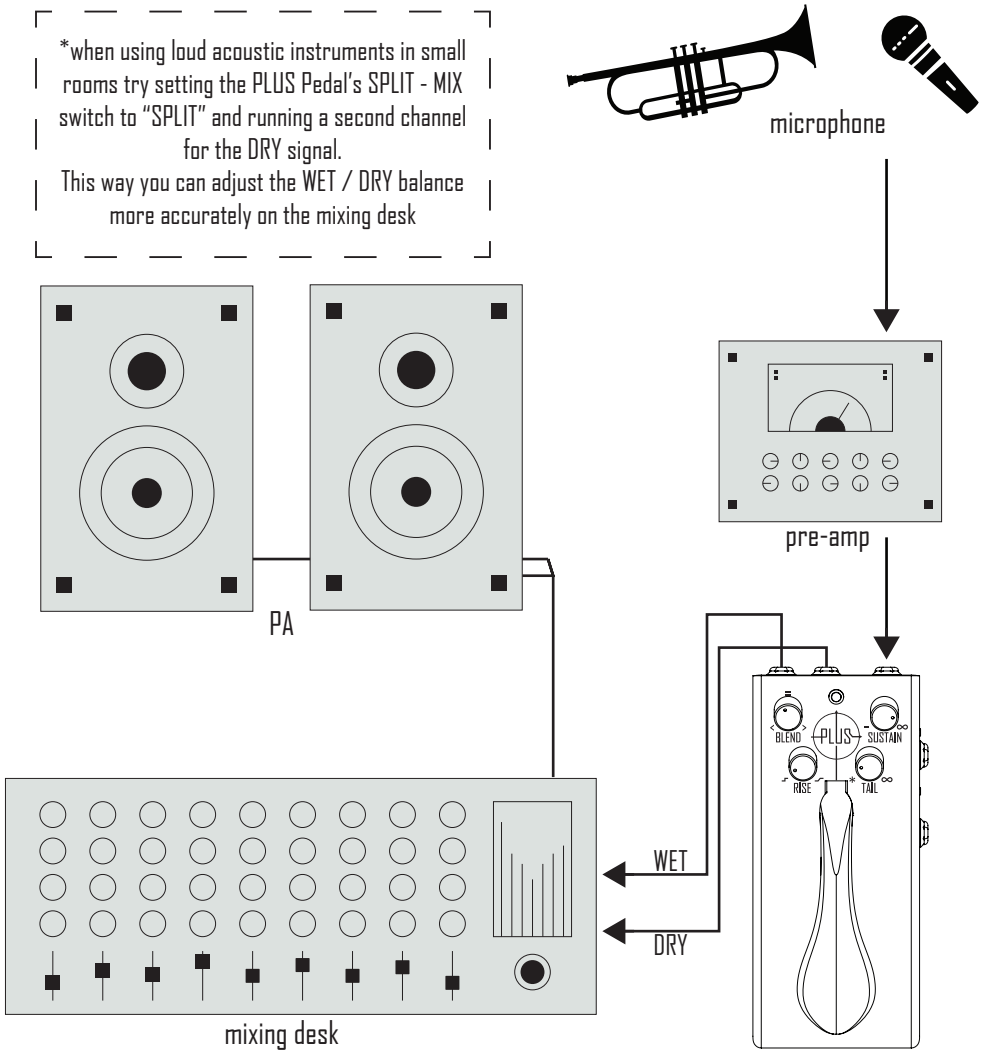


USING MICROPHONES

PLUS Pedal is compatible with all types of microphones, but it does not have a dedicated XLR input. For best results use a pre-amp to run the instrument's signal into the PLUS Pedal via a 1/4 inch audio jack cable.

To achieve a smooth tone, always make sure that the gain level of the input signal going into the PLUS Pedal is not clipping (see page 15 for input signal tech. specs)

*when using loud acoustic instruments in small rooms try setting the PLUS Pedal's SPLIT - MIX switch to "SPLIT" and running a second channel for the DRY signal.
This way you can adjust the WET / DRY balance more accurately on the mixing desk



FX LOOP

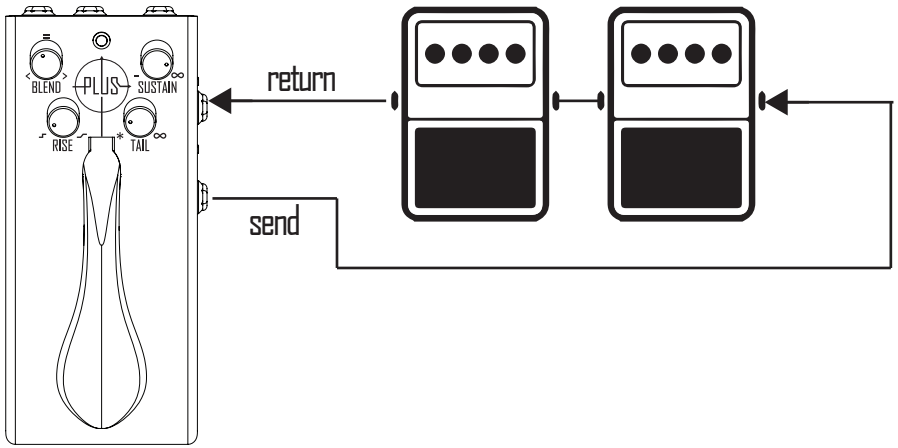
PLUS Pedal features a very easily accessible FX Loop that allows you to channel the isolated WET signal through other external effects units.

The FX Loop does not have a separate on/off toggle switch – simply connect any effects device to the PLUS Pedal via the SEND and RETURN jacks and switch the external effect on. Now any WET signal produced by the PLUS Pedal will be channeled through this external effect.

As a start – connect a Tremolo or Vibrato unit to add a satisfying pulsation to all of the sustained notes / chords you produce with the PLUS Pedal.

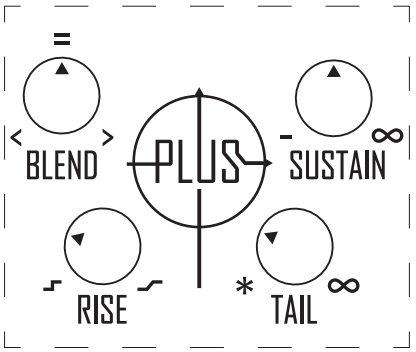
Modulation effects, such as Choruses, Flangers or Phaser will add a nice psychedelic "turbulence" to your sustained layers.

Pitch shifters, Harmonizers and Octavers are great for creating complex tonal content, polyphonic arrangements and songwriting.



RECOMMENDED PRESETS

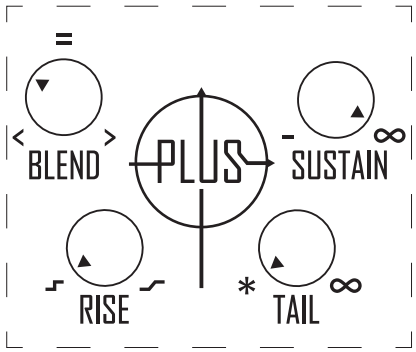
SINGLE mode



"NATURAL"

This setting will give you a clear and transparent tone that fades in and out very smoothly; a short TAIL lets you interchange chords seamlessly. This is perfect for creating a temporary harmonic backdrop in a blues, rock context.

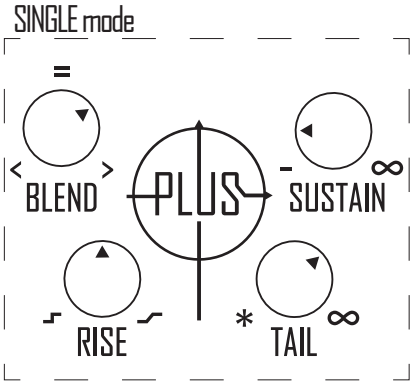
SINGLE mode



"FAST"

When playing high tempo songs, where harmonies change quickly, it is useful to keep the RISE and TAIL knobs turned all the way down. This way you can do chromatic moves without getting any dissonance from the previous sustain layers.

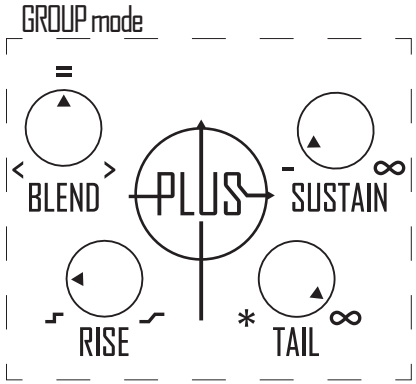
SINGLE mode



"DREAMY"

Slow and airy layers of sound rising up from the amp. This setting is great for creating ambiance, soundscapes and all sorts of space-textures. And now try this in WET mode... ;)

GROUP mode



"LATCHING"

When in GROUP mode - try setting the TAIL to infinity and the number of layers to just one (SUSTAIN knob). Now you can latch on to layers indefinitely and just replace them as you go.

FOR MORE USEFUL INFO AND PRESETS, PLEASE TAKE A LOOK AT OUR ONLINE GUIDES AVAILABLE AT:
WWW.PLUSPEDAL.COM

TECHNICAL SPECIFICATIONS

INPUTS:

	IN	RETURN
Input Type	1/4” Unbalanced TS	
Input Impedance	1MΩ	
Max Input Level	+6.8dBu	

OUTPUTS:

	OUT	CLEAN OUT	SEND
Output Type	1/4” Unbalanced TS		
Output Impedance	100Ω		
Max Output Level	+6.8dBu		

Max ADC input	-1.8dBu
Max DAC output	+5.2dBu
Sample Rate	26kHz
A/D D/A Conversion	16 bit
Frequency Response Analog/Digital	20Hz to 22kHz/13kHz
Signal to Noise Ratio	-97 dB (A weighted); ref = max level, 22 kHz bandwidth
THD	-84 dB, ref= 6dBu, 1kHz
Controls	2-position foot pedal, Potentiometers: BLEND, SUSTAIN, RISE, TAIL, Switches: GROUP/SINGLE, SPLIT/MIX, additional footswitch input.
Indicator	3-level check and pedal state indicator
Connectors	IN, CLEAN OUT/FSW, OUT, SEND, RETURN
Power Consumption	1.8W
Power Requirements	200mA, 9VDC, center negative 2.1 x 5.5 mm plug.
PLUS PEDAL Dimensions (WxDxH)	90 x 195 x 72 mm (3.55 x 7.7 x 2.8 in)
PLUS PEDAL Weight	1020 g (2.25 lbs)
Footswitch Dimensions (WxDxH)	58 x 66 x 46 mm (2.3 x 2.6 x 1.8 in)
Footswitch weight	230 g (0.5 lbs)

REFUND AND WARRANTY:
You have a 30 day return period when you may return the product and receive a full refund. You will only be responsible for return shipping charges.
Each PLUS Pedal manufactured by Gamechanger Audio (PLUS Pedal Ltd) is warrantied to be free from defects in materials and workmanship for one year from the date of shipping, or longer if required by the relevant legislation.
This warranty shall not apply to any PLUS Pedal unit which in the opinion of the manufacturer has been used improperly, or has been mechanically or otherwise damaged by accident, misuse or negligence or has been altered or repaired in such a way to impair performance, nor shall it apply to cosmetic defects, considered normal wear and tear.
Other parts which may have a limited life-span due to degradation as a function of use, such as knobs, rubbers, audio cable connectors, are non-replaceable. The manufacturer reserves the right to make changes in design or construction of this equipment without obligation to install similar changes in equipment already sold.

WARNING:
Use only power supplies that can produce at least 200mA of current at 9V DC (center negative 5.5 x 2.1mm barrel connector).
This device may be subject to signal interference when operating near high power mangetic field generators, especially when using extended length audio cables, and this is considered normal operation.

FOR THE US:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.
Unauthorized changes or modification to this system can void the users authority to operate this equipment. This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Europe:
This product complies with the requirements of Electromagnetic Compability Directive 2014/30/EU

For Canada:
NOTICE: This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS: Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

PLUS Pedal is an audio electronics product developed by Gamechanger Audio (PLUS Pedal Ltd.)
Tomsona Street 33a/32 LV-1013, Riga, Latvia; **www.pluspedal.com info@pluspedal.com** **+12024079741 +37128377919**

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