

Further Information

On our website (www.empresseffects.com) you will find lots of further information and details on the following points:

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This manual is also available as a PDF file for you to download.

Keyword Search

Use the search function in the electronic version of this manual to find your topics of interest quickly.

Customer Support

If you have any problems with the device our Customer Support team will gladly assist you.

Symbols and Signal Words

Signal Word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.

Warning Signs	Type of Danger
	General warning sign
4	Electricity Hazard
<u> </u>	Hot Surface
	Sudden Loud Noises

Intended Use

This pedal is designed for enhancing guitar tones in live performances and studio recordings. Use as outlined in the user manual. The manufacturer is not liable for damages resulting from improper use or use under non-recommended conditions.

Safety



DANGER! Danger for children

Dispose of plastic bags and packaging properly to keep them out of reach of babies and young children to prevent choking hazards. Ensure children don't detach small parts like knobs to avoid choking. Never leave children unattended with electrical devices.



DANGER! Electrical shock

Risk of electrical shock from exposed wires or damaged components. Inspect pedals for damage before use. If damaged, stop use and seek professional repair.



DANGER! Power Supply Issues

Use the right voltage and current for your pedal's power supply to prevent damage and safety risks. Check the power supply's condition, and for multiple pedals, opt for a dedicated supply to avoid overloading by daisy-chaining.



CAUTION! Overheating

Avoid overheating. Do not stack pedals or place in confined spaces. If a pedal overheats, stop using and let it cool.



CAUTION! Tripping Hazard / Pedal Placement

Prevent tripping: Secure cables and place pedals firmly to avoid slips and falls.



CAUTION! Volume Spikes

Beware of volume spikes and unexpected sounds when adjusting pedal settings



NOTICE! Allergies or Sensitivities

Allergy Alert: Some pedal materials, like adhesives and coatings, may cause reactions. Stop use and seek medical advice if needed.

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NOTICE! Fire Hazard

Keep away from direct heat and open flames.

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Introduction

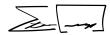
We designed the Buffer++ to be the ultimate utility pedal. Built for musicians who want to create any rig they can imagine without sacrificing tone, it combines our renowned buffer technology with flexible, creative routing.

All the best features from the Buffer+ are here: footswitchable boost, input pad, noise filters, and variable input loading. But we've added even more, like input meters, AB/AY and loop switching, external switch control, and full stereo I/O.

With 12 powerful operating modes, you can switch between instruments or amps, tame noisy vintage pedals for live use, and rebuild your setup again and again, knowing your signal will stay clean and strong.

The Buffer++ is made for musicians with a lot of gear, and even more ideas. We can't wait to see what you do with it.

-Steve Bragg President



Controls at a Glance

Input Pads (page 5): Useful for padding very hot signals like active pickups or line level instruments.

Footswitch Function (page 9): Sets the function of the footswitch in Modes 1-6.

Boost (page 9): Sets the amount of boost applied when the Boost LED is lit. Ranges from 0 to +30dB.

Footswitch (page 9): Controls Boost status, AB/AY and momentary switching, or Silent Tuning (depending on the Mode and position of the footswitch function togale).



Noise Filter (page 6): Helps eliminate noise from your signal path.

In 1 Loading (page 5): Varies the load "seen" by your guitar pickups on In 1. Turn the knob fully clockwise for a standard input impedance, allowing your guitar's full frequency range to pass untouched.

Out 2 Polarity (page 5): Inverts the polarity of Out 2, useful for when effects or amp placement causes polarity or phase issues.

Input & Output LEDs

The Buffer++ features 6 mini LEDs that indicate the status of their corresponding In, Loop In, and Out jacks.

Input LEDs (Metering)

These 4 LEDs indicate signal presence at each input.

- If the LED is unlit, no signal is present.
- If a signal is detected, the LED will be lit green.
- If the signal is too hot and clipping the input, the LED will be lit red.

In some routing modes (Modes 9–12), an input LED will be lit orange to indicate that the respective input is inactive. For more information, see the Configuration section (page 10).

Output LEDs

These 2 LEDs indicate the current output state when the Footswitch (FSW) Function toggle is set to A/B or A/Y:

In A/B mode, Out 1 lit white means output A is selected; Out 2 lit white means output B. In A/Y mode, Out 1 lit white means output A is selected; both Out 1 and Out 2 lit white means output Y (both outputs active).

Note: Some routing modes repurpose A/B or A/Y switching for other signal functions (e.g., Mode 5 – Loop Select). Modes 6– 12 do not use the FSW Function toggle, and the output LEDs remain off to reflect this—except Mode 6, where both output LEDs are lit white to indicate that signal summing is active.

Different instruments output different signal levels. Passive guitars and basses typically run at instrument level (around -20dBu), while synths and other electronic gear often run hotter (-10dBu or higher). The Buffer++ includes -6dB and -12dB input pads on both channels to help tame those hotter signals. In the centre position, no pad is applied. If you notice that your instrument is causing the input LED of the Buffer++ to turn red, flip the switch to the left or right to lower input gain, prevent clipping, and maintain a clean, balanced tone—especially when combining instruments with mismatched levels.

Input Loading

The Buffer++ is designed to preserve your tone, but sometimes a little high-end rolloff can sound just right. The side-mounted input loading knob lets you dial in how much your pickups interact with the pedals in the loop of or after the Buffer++.

Fully clockwise, the input impedance is $1M\Omega$ (the standard impedance of most guitar effects pedals), allowing your guitar's full frequency range to pass untouched. As you turn it counterclockwise, the impedance will drop progressively down to $10k\Omega$, subtly loading your pickups and softening the top end. This simulates adding just the right amount of cable-induced warmth, without the mess of long cables.

Polarity

If you're running a stereo or dual-amp setup and something sounds thin or weirdly hollow, it might be a phase issue—where the signals from each amp are canceling each other out instead of blending together.

This can happen because of how your amps are wired internally, or even just their physical placement. The Buffer++ includes a polarity switch on Out 2 that inverts the polarity, helping you fix phase cancellation and get your full tone back.

Loop Ins

We use ultra-low noise, high-headroom differential preamps on the loop inputs to ensure that the Buffer++ can accept even the hottest signals without distortion. Although typical pedal cables are unbalanced, these inputs still help eliminate ground loop hum and RF interference by rejecting noise common to both conductors, preserving signal integrity even in complex setups.

Noise Filter

Some pedals—especially vintage digital ones—sound amazing but come with a catch: constant high-frequency noise. They're great in the studio where you can clean up tracks in post, but for live shows, you're often stuck swapping them for something quieter and less exciting. The Buffer++ noise filters cut the whine without dulling your tone, so you can bring your best sounds to the stage.

Most pedal noise is steady and concentrated in the upper frequencies (typically 5kHz and above), regardless of your guitar signal. The Buffer++'s Dolby-style noise filter temporarily boosts this range as the signal exits the Loop Out, increasing the signal-to-noise ratio. It then cuts the same range at the Loop In, reducing noise without affecting your core tone.

We've also added the option for "little" or "lots" of noise filtering, so you can be sure your tone stays natural and never over-processed.

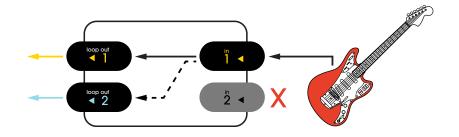
Note: This filter is designed to target high-frequency pedal noise. It won't eliminate low-

Normalized Signal Paths

The Buffer++ features normalized signal paths, meaning certain jacks pass signal internally when there is no external connection present. These internal connections are automatically re-routed when a cable is inserted.

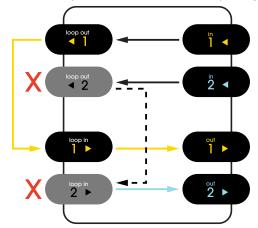
In 1 — Loop Out 2

If nothing is connected to In 2, In 1 is normalized to Loop Out 2 (except in Modes 9–12). This configures the Buffer++ as a signal splitter.



Loop Outs - Loop Ins

If nothing is connected to a Loop In, it is normalized to its corresponding Loop Out.



Isolated Output

Ground loops are one of the most common causes of unwanted hum and noise in audio systems—especially when running multiple amps, interfaces, or power sources. They happen when two pieces of gear are connected to a shared ground through more than one path, creating a noisy feedback loop at low frequencies (that nasty 60Hz hum).

To prevent this, Output 2 on the Buffer++ is transformer-isolated. This breaks the ground connection while still passing signal, letting you run dual amp or stereo setups without

Boost & Footswitch Function

The Buffer++ offers up to 30dB of clean boost, controlled by the central Boost knob. When the boost is active, the Boost LED above the footswitch will be lit blue.

In Modes 1-6, when the FSW Function toggle is set to Boost you can engage or bypass the boost using the footswitch.

When the FSW Function toggle is set to A/B or A/Y, and no external switch is assigned to the boost (see page 11 for setup instructions), the boost is always active and the Boost LED will be lit blue to indicate as such. To ensure no gain is applied in these cases, simply turn the Boost knob fully counterclockwise.

Tuner Out & Silent Tuning

The dedicated Tuner Out keeps your tuner completely isolated from the rest of your signal path. This avoids "tuner tone suck," where split signals or low-impedance inputs on some tuners can dull your tone. The Tuner Out is fed from In 1 in Modes 1-8, and from the selected instrument signal in Modes 9-12.

To enter Silent Tuning mode, hold the built-in footswitch or use a configured external footswitch (see page 11 for setup instructions). Out 1 and Out 2 will mute, and the Boost LED will turn red to let you know you're in tuning mode. Press the footswitch again to exit and return to your previous routing.

Note: Silent Tuning via the built-in footswitch is not available in Modes 7 and 8. To access Silent Tuning in these modes, you'll need to assign an external switch (page 11).

Configuration

The Buffer++ offers 12 powerful routing modes to support nearly any setup. Each mode adjusts how the pedal internally routes your signal, so you can switch instruments, amps, or loops with ease.

Entering Configuration Mode

To enter Configuration Mode, hold the footswitch while powering on the pedal. The Boost LED will flash blue and the input LEDs will cycle to indicate that you've successfully entered Configuration Mode.

Selecting a Routing Mode

Once in Configuration Mode, use the footswitch to scroll through the available routing modes. The Input & Output LEDs will indicate the currently selected mode.

The Input & Output LEDs cycle green, orange, then red, starting with In 1 and ending with Loop In 2. Mode 1 is indicated by a green In 1 LED, Mode 2 is indicated by an orange In 1 LED, and so on. Each of the available Routing Modes include LED descriptions for easy setup and reference.

Configuring an External Switch

You can connect a normally-open external momentary switch to enable the boost or silent tuning modes on the Buffer++. While in Configuration Mode, the FSW Function toggle determines the external switch behavior:

- Left position: switch engages Boost (page 9). The Boost LED will be lit blue.
- Right position: switch engages Silent Tuning (page 9). The Boost LED will be lit
 red
- Middle position: no external switch assigned. The Boost LED is unlit.

Note: The FSW Function toggle position is only registered when the switch is toggled. This ensures that the previously-set external switch setting won't be overwritten when entering Configuration Mode.

Saving and Exiting Configuration Mode

Press and hold the footswitch to save and exit Configuration Mode. The large LED will flash blue, then the Buffer++ will load your selected routing mode. The Buffer++ will load the saved mode on every startup until it is changed in Configuration Mode.

Available Routing Modes

Modes 1-6: Loop Select/Summing modes

Modes 7-8: Momentary Loop Select/Summing modes

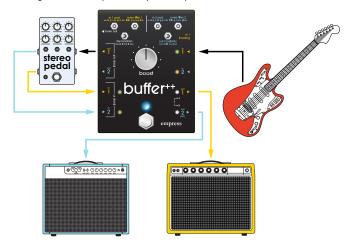
Modes 9-12: Instrument Select modes

Mode 1 - Independent (Stereo) Loops

LED Mode Indicator: In 1 - Green

This is your standard stereo configuration. Loop In 1 routes to Out 1, and Loop In 2 routes to Out 2.

In 2 routes to Loop Out 2, so you can connect a stereo instrument and send each channel through its own loop and output (not pictured).



To make an easy wet/dry rig, leave In 2, Loop Out 2 and Loop In 2 disconnected. This will send your dry signal to Amp 2, while your effects in Loop 1 are routed to Amp 1. See page 7 for more details on the Buffer++'s normalized signal paths.

Mode 1 - A/B



A/B A - Out 2 is disabled. The signal from Loop In 1 is routed to Out 1

A/BB - Out 1 is disabled. The signal from Loop In 2 is routed to Out 2

Mode 1 - A/Y



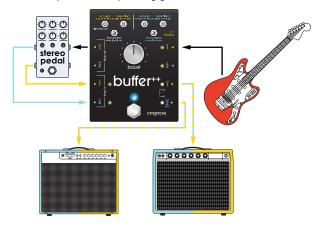
A/Y A - Out 2 is disabled. The signal from Loop In 1 is routed to Out 1

A/Y Y - Both loops active (standard stereo operation). Loop In 1 routes to Out 1, Loop In 2 routes to Out 2.

Mode 2 - Summed Loops

LED Mode Indicator: In 1 - Orange

This mode sums the signals from Loop In 1 and Loop In 2 and sends the combined result to both Out 1 and Out 2. It's perfect for players who use stereo effects at home or in the studio but need a simple mono output for gigs.



With Mode 2, you can keep your pedalboard wired in stereo and just switch modes when you're playing through a single amp—no rewiring needed. Both loops stay active, but their outputs are blended and mirrored to both outs.

In 2 routes to Loop Out 2, so you can connect and sum a stereo instrument and effects chain to single- or dual-mono outputs (not pictured).

Mode 2 - A/B



A/B A - Out 2 is disabled. The summed signal from Loop In 1 and Loop in 2 is sent only to Out 1.

A/BB - Out 1 is disabled. The summed signal is only routed to Out 2.

Mode 2 - A/Y



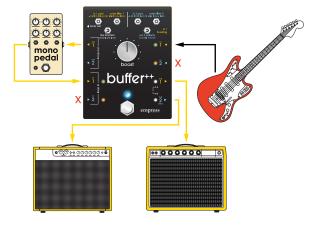
A/YA - Out 2 is disabled. The summed signal from Loop In 1 and Loop in 2 is sent only to Out 1.

A/YY - Loop In 1 and Loop In 2 are summed and routed to both outputs.

Mode 3 - Loop In 1 Only

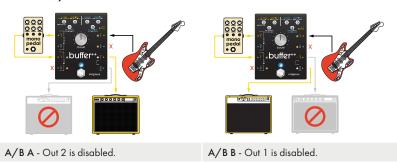
LED Mode Indicator: In 1 - Red

This mode is designed for a mono effects chain feeding two amps. Loop In 1 is routed to both Out 1 and Out 2, while In 2 and Loop In 2 are disabled.



This configuration ensures that no dry signal is passed through Loop In 2 when it's unused, making it ideal for sending a single chain to two destinations without signal bleed.

Mode 3 - A/B



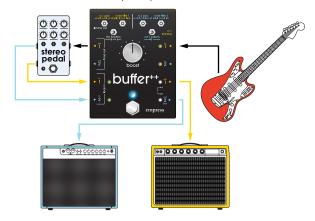
Mode 3 - A/Y



Mode 4 - Independent/Summed Loop Ins Combination

LED Mode Indicator: In 2 - Green

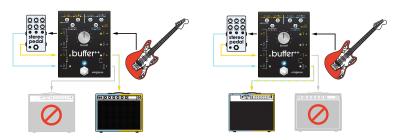
This mode is ideal for players who want to switch between stereo and mono rigs without re-patching. When the FSW Function toggle is set to Boost, Loop In 1 and Loop In 2 are independent and routed to both outputs—just like Mode 1.



The A/B and A/Y FSW Function toggle positions control whether your loop returns are summed to mono or kept independent.

In 2 routes to Loop Out 2, so you can connect a stereo instrument and effects chain, then use the FSW Function to choose whether the signals are independent or summed (not pictured).

Mode 4 - A/B



A/B A - Loop In 1 and Loop In 2 are summed and routed to Out 1.

A/BB-Loop In 1 and Loop In 2 are summed and routed to Out 2

Mode 4 - A/Y



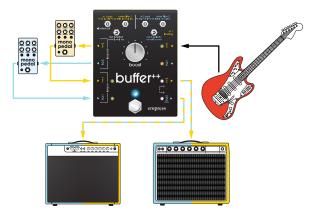
A/Y A - Loop In 1 and Loop In 2 are summed and routed to Out 1.

A/Y Y - Independent (stereo) loops. Loop In 1 routes to Out 1, Loop In 2 routes to Out 2.

Mode 5 - Loop Select

LED Mode Indicator: In 2 - Orange

Perfect for switching between two completely separate signal chains, or using both. With the FSW toggle set to Boost, the signals from Loop In 1 and Loop In 2 are summed and routed to both Out 1 and Out 2.



Set the FSW toggle to A/B or A/Y to choose which Loop is routed to both outputs: 1, 2, or both.

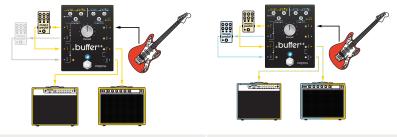
Mode 5 - A/B



A/B A - Loop In 1 is routed to both outputs.

A/B B - Loop In 2 is routed to both outputs.

Mode 5 - A/Y



A/Y A - Loop In 1 is routed to both outputs.

A/YY - Loop In 1 and Loop In 2 are summed and routed to both outputs.

Mode 6 - Loop Sum Select

LED Mode Indicator: In 2 - Red

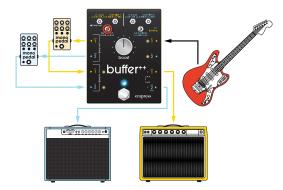
The FSW Function toggle is inactive in this mode.

This mode lets you use the footswitch to toggle between two output configurations:

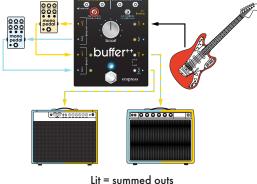
- Independent: Loop In 1 is routed to Out 1, Loop In 2 goes to Out 2 (white A/B/Y LEDs unlit)
- Summed: Both Loop Ins are summed and routed to both outputs (white A/B/Y LEDs lit)

This setup is ideal for players who want to alternate between a dual mono rig and a stereo output configuration without rewiring their board.

The FSW Function toggle is inactive in this mode, and the Out LEDs indicate your routing state:



Unlit = independent outs



Note: This is the only mode that disables the FSW Function toggle while still using the Out LEDs to indicate routing state. In Modes 7–12, the Out LEDs are unlit to indicate the FSW Function togale is bypassed.

Mode 7 - Momentary Loop Switching

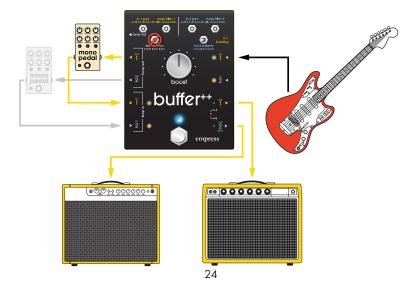
LED Mode Indicator: Loop In 1 - Green

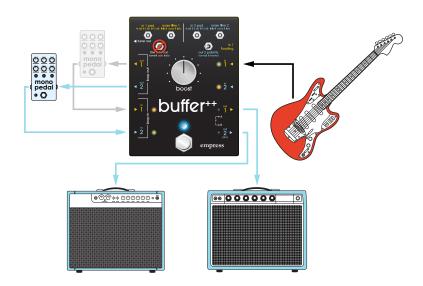
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode lets you momentarily switch from Loop 1 to Loop 2 for effect stabs. Hold the footswitch to momentarily engage Loop 2, then release to return to Loop 1.

The active loop is routed to both Out 1 and Out 2.

Note: The Tuner Mute function is not accessible in this mode without an external footswitch (see page 11).





Mode 8 - Momentary Loop Sum

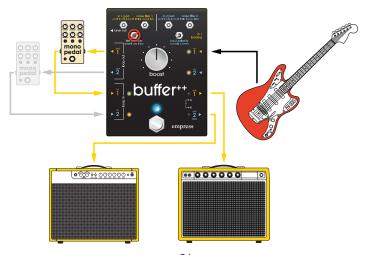
LED Mode Indicator: Loop In 1 - Orange

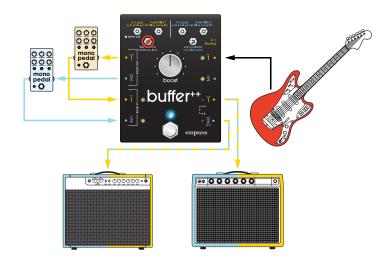
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode lets you momentarily sum Loop 1 and Loop 2 for creative parallel effect building. Hold the footswitch to momentarily sum both loops, then release to return to Loop 1 alone.

The active loop is routed to both Out 1 and Out 2.

Note: The Tuner Mute function is not accessible in this mode without an external footswitch (see page 11).





Mode 9 - Instrument Select - Mono Loops

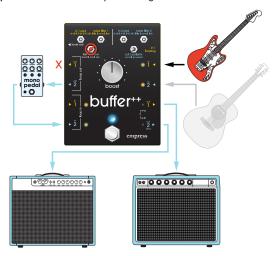
LED Mode Indicator: Loop In 1 - Red

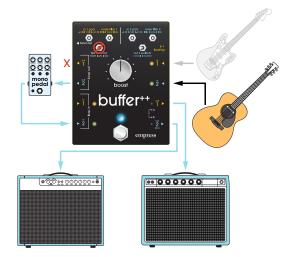
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode is ideal for switching between two instruments without having to unplug anything. Connect one instrument to In 1 and another to In 2, then tap the footswitch to toggle between them.

The selected instrument signal will be routed through Loop 2 only (Loop 1 is not used) and routed to both Out 1 and Out 2.

The inactive input will be indicated by an orange LED.





Mode 10 - Instrument Select - Summed Loops

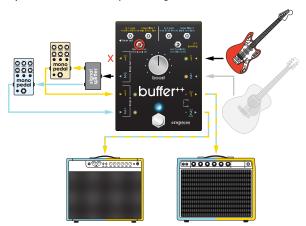
LED Mode Indicator: Loop In 2 - Green

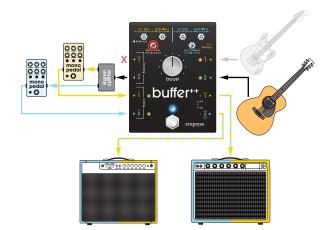
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode is ideal for switching between two instruments that each run through parallel effects chains. For example, you might send your signal into two loops—one for overdrive, one for reverb—then return and sum them before your amp. Connect one instrument to In 1 and another to In 2, then tap the footswitch to toggle between them.

The selected instrument signal is routed through Loop Out 2 only (Loop Out 1 is not used). To send signal to both Loop Ins you'll need an external signal splitter or mono-instereo-out pedal. The Loop Ins are then summed and routed to both outputs.

The inactive input will be indicated by an orange LED.





Mode 11 - Instrument Select - Independent (Stereo) Loops

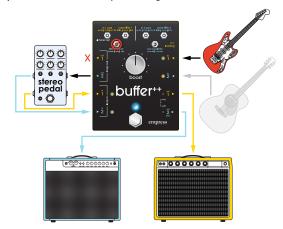
LED Mode Indicator: Loop In 2 - Orange

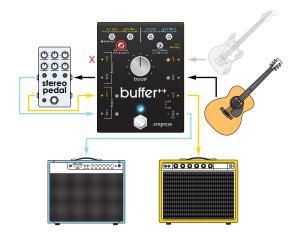
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode is great for switching between two instruments, both of which run through the same stereo effects loop. Connect one instrument to In 1 and another to In 2, then tap the footswitch to toggle between them.

The selected instrument signal is routed through Loop Out 2 only (Loop Out 1 is not used). To send signal to both Loop Ins you'll need an external signal splitter or mono-instereo-out pedal.

The inactive input will be indicated by an orange LED.





Mode 12 - Instrument Select - Separate Rigs, Shared Effects

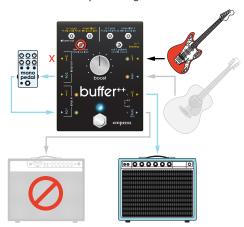
LED Mode Indicator: Loop In 2 - Red

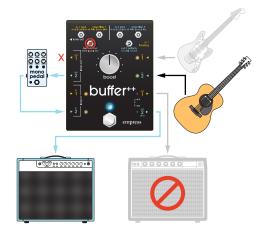
The FSW Function toggle is inactive in this mode, and the Out LEDs will remain unlit.

This mode is ideal for switching between two rigs that share a single mono effects chain—for example, electric guitar and amp on In 1/Out 1, and acoustic guitar and PA on In 2/Out 2. Connect each instrument and output device to their respective ins and outs, then tap the footswitch to toggle between them.

The selected instrument signal will be routed through Loop 2 only (Loop 1 is not used).

The inactive input will be indicated by an orange LED.





Powering the Buffer++

The Buffer++ requires at least 100mA of current to function properly. Any power supply rated at 9V DC with center-negative polarity (+-@--) and at least 100mA of current should work

Visit www.empresseffects.com/power for instructions on how to ensure your power supply works for your pedal.

Regulatory Compliance Information

ICES-003 (Canada)

CAN ICES-003(B) / NMB-003(B)

FCC (USA)

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.

Responsible Party in the USA

Americas Compliance Consulting LLC dba iCertifi

1001 SW Disk Drive, Ste 250

Bend, Oregon 97702 USA

FCC sDoC@icertifi.com

icertifi.com

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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.

CE (EU) and UKCA (UK)

This declaration of conformity is issued under the sole responsibility of Empress Effects Inc- 105-62 Steacie Dr, Kanata Ontario K2K 2A9. The device identified on the front page of this manual is in conformity with the requirements of:

- European Union: Electromagnetic Compatibility Directive 2014/30/EU
- United Kingdom: Electromagnetic Compatibility Regulations 2016 (SI 2016 No. 1091)

The following harmonized/designated standards have been applied:

- EN 55032:2015/A11:2020 Electromagnetic compatibility of multimedia equipment Emission Requirements
- EN 61000-3-2:2014 Electromagnetic compatibility (EMC) Part 3-2: Limits Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
- EN 61000-3-3:2013 Electromagnetic compatibility (EMC) Part 3-3: Limits Limitation of voltage changes, voltage
 fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not
 subject to conditional connection
- EN 55035:2017/A11:2020 Electromagnetic compatibility of multimedia equipment Immunity Requirements



Colin King

Design Engineer Empress Effects Inc

August 19, 2023

62 Steacie Dr, Suite 105, Kanata, Ontario K2K 2A9 Canada



WEEE (2012/19/EU)

This product must not be disposed of with regular household waste. In compliance with WEEE regulations, please take this product to a designated collection facility or return to the supplier for proper recycling. Comply with local laws and regulations for disposal. Contact your local authority or support@empresseffects.com for specific information.

Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling. Ensure that plastic bags, packaging, etc. are properly disposed of. Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.



Specifications

Input 1 Impedance: $10k\Omega - 1M\Omega$

Input 2 Impedance: 1 MΩ

Frequency Response: 20Hz – 20kHz

Total Harmonic Distortion + Noise:

Out 1: <1% (20Hz - 20kHz), <0.1% (200Hz - 20kHz)

Out 2 (isolation transformer): <1% (55Hz - 20kHz), <0.1% (200Hz - 20kHz)

Noise: < - 110dBu

Input Voltage: 9V DC Center-Negative

Required Current: 100mA

Power Input Connector: 2.1 mm Barrel Connector

Height: 2"

Length: 4.5"

Width: 3.5"

Weight: 1lb

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