



# OPERATING INSTRUCTIONS

## LEHLE PARALLEL SW II





Dear Musician!

Thank you for purchasing the LEHLE PARALLEL SW II!

I have been building units that switch, split and route signals with no technical compromises and with maximum musical fidelity since 1999. Your new LEHLE PARALLEL SW II comprises only the very best components. Every assembly of your LEHLE PARALLEL SW II has been made and tested in Germany.

Your LEHLE PARALLEL SW II is of extremely robust design and construction, to make sure that you get absolutely years and years of enjoyment from it. If you should nonetheless have a problem, or simply a question, just mail me or a member of the Lehle team at:

[support@lehle.com](mailto:support@lehle.com)

I wish you the very greatest pleasure and success using your LEHLE PARALLEL SW II!

*Burkard G. Witz*

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The LEHLE PARALLEL SW II is a compact and versatile line mixer designed to meet the highest tonal standards.

The LEHLE PARALLEL SW II mixes the signals from your effects units into your original signal, either before an amp or inserted into its effects loop. You can adjust send and return levels separately, and finely balance the effects signal to the original signal using the mix controller.

All connections are realised in stereo, so your stereo effects pedals can be placed into the signal path of the LEHLE PARALLEL SW II.

Thanks to the discrete Class A input stages with JFET technology, the LEHLE PARALLEL SW II's inputs can handle high-impedance signals - from electric guitars, basses or acoustic instruments - as well as low-impedance signals - from keyboards, active electric guitars and basses - with a broad output range extending from 20 to 100,000 Hz.

With the new LEHLE PARALLEL SW II it is now possible to combine mono and stereo signals. You can easily integrate ef-

fects pedals with mono input and stereo output into the signal path of the LEHLE PARALLEL SW II without limitations.

The great dynamic range of the LEHLE PARALLEL SW II makes it possible to blend rack-mount studio effects units with low-impedance line level into the guitar signal path, or insert effects pedals with their level-adjusted into an amp's effects loop.

To exploit the dynamics of tube amplifiers to the full, the input voltage is rectified from the power supply socket, then filtered, stabilized and transformed to 30 V.

The LEHLE-Switch works with a microcontroller and an intelligent True-Bypass-Relay-Circuit with active pop suppression circuit, thereby allowing the LEHLE PARALLEL SW II to switch even faster than mechanical switches, noise-free and without wear.

The easy-action mushroom-shaped button characteristic of LEHLE products is mounted in the cover, so that your foot pressure is transmitted indirectly, via a spring.

Thus the electronics board is not exposed to mechanical loads, making the LEHLE PARALLEL SW II virtually indestructible and guaranteeing years of trouble-free switching.

The LEHLE PARALLEL SW II has three foot switch modes, making the switch work as either a latching or momentary switch, allowing for short or rhythmic stutter-effects.

The third mode combines a mixture of operating mode one and two: a short hit is latching, a long hit is momentary. In every mode the LEHLE PARALLEL SW II can work in true-bypass or buffered-bypass

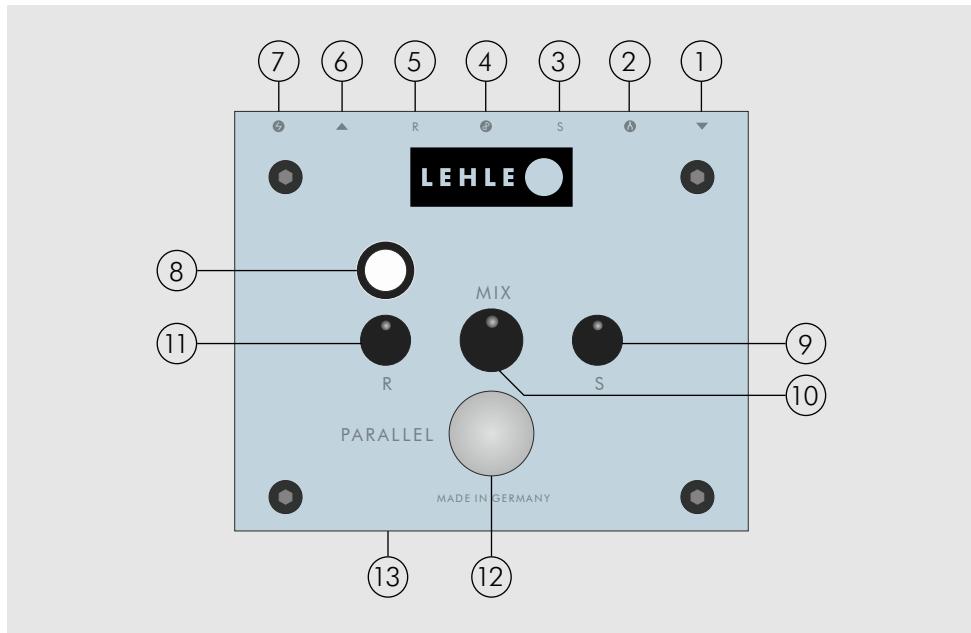
Placing no limitations on your creativity! We take care of your signal so that you can take care of the music.



## TECHNICAL DATA

Weight	480 g
Length	3.9"
Width	4.8"
Overall height	1.85"
Supply voltage	9-15 V DC
Current consumption	200 mA
Max input level	+20 dBu
Max output level	+22 dBu
Level noise floor	-100 dBu (20 Hz - 20 kHz)
Total harmonic distortion	0.003 % (0 dBu, 1 kHz)
Frequency range	20 Hz – 100 kHz
Impedance input	2 MΩ
Impedance return	2 MΩ
Impedance send	220 Ω
Impedance output	220 Ω
Max gain	+/-15 dB

## GENERAL DESCRIPTION



### 1. INPUT SOCKET



Connect your instrument or the Send output of your amplifier to this socket.

The LEHLE PARALLEL SW II has a high-impedance input and can therefore accept both low- and high-impedance signals of all types, so that you can plug in virtually any instrument you like:

electrical and acoustic stringed instruments, such as electric guitars and basses, acoustic guitars and all types of

stringed instruments, and also the low-impedance signals from computers, keyboards and mixers.

If you want to use your LEHLE PARALLEL SW II to inject an external effect into the serial effects loop of your amplifier, connect the Send output of the amplifier to this input socket.

## 2. MONO-TO-STEREO SWITCH

Activates at the input socket the mono-to-stereo function.

If this switch is not pressed, the LEHLE PARALLEL SW II works with either mono or stereo signals. This means, all sockets should be occupied with either mono jacks (TS) or stereo jacks (TRS).

By doing this you can place a mono or stereo effects pedal in the loop of the LEHLE PARALLEL SW II.

Some effects offer a stereo output, but a mono input. If the mono-to-stereo switch is pressed, the input (1) and send (3) can be occupied with mono jacks (TS), while the return (5) and output (6) transfer a stereo signal via stereo jacks (TRS).

If the LEHLE PARALLEL SW II is activated the input signal will be sent in mono to the effects pedal.

The output of the effect can be returned in stereo to the return (5) and sent out to the output (6) in stereo.

If the LEHLE PARALLEL SW II is deactivated the mono signal will be split straight after the input and sent loss-free to the output (6).



S

## 3. SEND SOCKET

Connect the input of your effects unit or the input of your target device (e.g. mixer, computer, etc.) to this socket.

If you're using the LEHLE PARALLEL SW II for parallel effects loops, connect the Send socket to the input of the effects unit.

The intensity of the signal available on the Send socket can be controlled using the Send controller (9).

## 4. PHASE SWITCH



The phase of the return signal can be reversed here, if necessary.

Phase cancellations can occur if you are mixing the original signal with the return signal - this sound is usually felt to be too "thin" or "hollow".

Reversing the phase using the gold-contacted phase switch solves this problem.

Simply move the switch to the position at which the sound is best - this is, of course, ultimately a question of individual taste.

## 5. RETURN SOCKET

R

Connect the output of your effects unit or the output of your second device (e.g. mixer, computer, second pickup on a guitar, etc.) to this socket.

If you're using the LEHLE PARALLEL SW II for parallel effects loops, connect the output of your effects unit to the Return socket.

The Return socket can also be used as an input for other signal sources - the output from a computer sound card, for example, or from a signal processor.

If the LEHLE PARALLEL SW II is being used to mix two pickups from one instrument, the Return socket can also be used as the input for the second pickup.

The Return socket has a 2 MOhm input impedance. This means that even very weak signals, such as those generated by piezo and magnetic pickups can be transmitted without loss of sound.

The Return input's sensitivity can be adjusted using the controller (11).

Like every other socket, the return input can be used in stereo as well.

Please refer to paragraph "2. Mono-to-stereo switch" on page 8.

## 6. OUTPUT SOCKET



Connect your amplifier or the Return input from the serial effects loop of your amplifier to this socket.

The device connected here will mostly be an amplifier, but can also be a mixer, a stage box or a sound card.

The signal mixed from the input and the return signal is available here.

The mixing ratio can be controlled using the MIX controller (10).

Connect the output socket to the Return input of your amplifier if you want to use the LEHLE PARALLEL SW II to inject an external effect into your amplifier's serial effects loop.

## 7. EXTERNAL POWER SUPPLY



Connect a power supply with a voltage of 9 – 15 V.

In order for the LEHLE PARALLEL SW II to work flawlessly, it needs a current supply. This should supply a minimum of 9 V and a maximum of 15 V. Polarity is of no importance.

The supply voltage is internally rectified and stabilized in order to guarantee trouble-free operation.

In order to avoid noise it's recommendable to use a single power supply or an output of a multi power supply offering galvanically isolated outputs for the LEHLE PARALLEL SW II.

## 8. LED FOR SWITCHING STATUS

If the LED shows white, the input (1) is directly connected to the output (6).

The high-intensity LED clearly indicates the current switching status - even under bright spotlights.

When you use the LEHLE PARALLEL SW II as an effects loop switcher and the LED shows white, the effects are in Bypass, when blue they are in the signal path.

If you use it for switching or mixing two instruments, LED white means that the instrument at the input (1) is active, blue applies that the return (5) is active.

## 9. SEND CONTROLLER

S

You can set the level of the Send signal here.

The input signal is available 1:1 on the Send input when this controller is set to its center position.

Turn the controller to the left to decrease the signal by up to 15 dB, or to the right to boost the signal by up to 15 dB.

## 10. MIX CONTROLLER

MIX

Here you can set the ratio for mixing the Input and Return signals.

The two signals have equal strength when this controller is in its center position. Turn the MIX controller to the left to increase the Return signal and decrease the Input

signal. The Input signal is increased, and the Return signal decreased when you turn the controller to the right.

## 11. RETURN CONTROLLER

R

Set the level of the Return signal here.

The signal on the Return input is transmitted 1:1 when this controller is in its center position.

Turn the controller to the left to decrease the signal by up to 15 dB, or to the right to boost the signal by up to 15 dB.

## 12. FOOT SWITCH

Here you can switch.

The LEHLE PARALLEL SW II switches all audio signals controlled by a microcontroller and an intelligent True-Bypass-Relay-Circuit with an active pop suppression function.

Triggered by the easy-action mushroom-shaped button characteristic of LEHLE products mounted in the cover so that your foot pressure is transmitted indirectly via a spring.

Thus the circuit board is not exposed to mechanical loads, making the LEHLE PARALLEL SW II virtually indestructible and guaranteeing years of trouble-free switching.

According to the foot switch mode following configurations are given:

- Latching Mode:

The LEHLE foot switch “latches” by a press and release.

- Momentary Mode:

The LEHLE foot switch triggers a contact and disconnects once released.

- Mixed Mode:

A mix between latching and momentary. A short press lets the foot switch act as latching, a longer press is momentary.

You will find out how to change the operating mode and foot switch mode in the chapter “SELECTING THE OPERATING MODE AND FOOT SWITCH MODE” on page 12.

### 13. BASE AND FIXING

If required, mount the LEHLE PARALLEL SW II to a pedalboard using the mounting kit.

The LEHLE PARALLEL SW II can be mounted to a plate such as a pedalboard using the two holes in the bottom of the pedal. You can find the optional LEHLE Mounting Kit V3 (order number 100981) online at [www.lehle-components.com](http://www.lehle-components.com).

To mount, undo the four housing screws by using a 2.5 mm Allen key and detach

the cover.

Then fix the device base to a base plate using the two screws, the washers and the spacers of the Mounting Kit.

Attach the cover and tighten the four housing screws - done!

For flexible solutions we recommend using 3M Dual Lock™ instead of Velcro for stability, which you can also find in handy sizes at [www.lehle-components.com](http://www.lehle-components.com)

If you are using the Velcro / Dual Lock™ method, please make a note of the serial number on the bottom of the pedal before you cover it, in case you have a support question for us later and don't fancy dismantling your board!



## SELECTING THE OPERATING MODE AND FOOT SWITCH MODE

You can change the behaviour of the foot switch, so it works latching, momentary or in a mixed mode.

According to the foot switch mode following configurations are given:

- Latching Mode:

The LEHLE foot switch “latches” by a press and release.

- Momentary Mode:

The LEHLE foot switch triggers a contact and disconnects once released.

- Mixed Mode:

A mix between latching and momentary. A short press lets the foot switch act as latching, a longer press is momentary.

Additionally the operating mode of the LEHLE PARALLEL SW II can be changed to give you more creative possibilities: if it works in the true-bypass-mode, the Return (5) is being activated and deactivated.

In the buffered-bypass-mode the Send (3) is being activated and deactivated.

This mode works especially well for the application with delay or reverb pedals, whose “trails”, the decay of echoes or reverb, won’t be cut if the LEHLE PARALLEL SW II is being deactivated.

If the operating modes of your LEHLE PARALLEL SW II cannot be changed, please get in contact with us.

To change the operating and foot switch mode please proceed as follows:

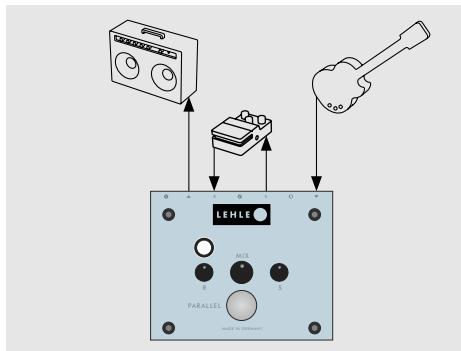
1. Disconnect the power supply.
2. Press and hold the foot switch.
3. Reconnect the power.
4. The white LED starts flashing in following order:
  - for Latching Mode in true-bypass
  - for Momentary Mode in true-bypass
  - for Mixed Mode in true-bypass
5. The blue LED starts flashing in following order:
  - for Latching Mode in buffered-bypass
  - for Momentary Mode in buffered-bypass
  - for Mixed Mode in buffered-bypass
6. If you release the foot switch after the first white flash, the Latching Mode is selected. After 2x flashes you're in the Momentary Mode and after 3x it's the Mixed Mode, each in true-bypass.
7. If you release the foot switch after the first blue flash, the Latching Mode is selected. After 2x flashes you're in the Momentary Mode and after 3x it's the Mixed Mode, each in buffered-bypass.
8. The LEHLE PARALLEL SW II turns off and reboots.

The selection of the operating mode and foot switch mode is stored inside and recalled every time the pedal is powered on.



## TYPICAL USES

### LEHLE PARALLEL SW II AS PARALLEL EFFECTS LOOPER



#### DEVICE CONNECTION

	Input	Instrument
	Send	Input effect(s)
	Return	Output effect(s)
	Output	Amplifier

Without a LEHLE PARALLEL SW II, injecting effects into the signal path can cause all kinds of problems, especially if you're using older, so-called "vintage" effects which, as every player knows, produce a unique sound, but can modify the dry signal very noticeably.

The LEHLE PARALLEL SW II will help you here in several ways:

**Optimum effect level:** Because you can select an optimum mix ratio between the dry signal and the effect by using the MIX controller (10), you can mix exactly the amount of effect you want into the original signal.

**Minimum noise:** The ability to adjust the level of the effects device connected using the Send and Return controllers means

that noise is reduced to the absolute minimum. It can be a good idea to increase the Send level when using effects units that generate a lot of background noise, since this enables you to get more signal and less noise in the effects sound.

This works equally well with both mono and stereo effects. If you are using stereo effects with a mono input, make sure that the input (1) and send (3) are mono jacks (TS) and the return (5) and output (6) are stereo jacks (TRS). Please press the mono-to-stereo switch (2) too, in order to ensure the mono signal is internally distributed to stereo correctly. 

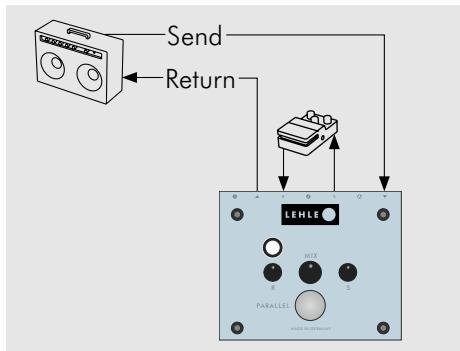
## HOW TO DO THIS

1. Connect your instrument to the Input socket (1) of the LEHLE PARALLEL SW II.
2. Connect your amplifier to the Output socket (6) of the LEHLE PARALLEL SW II.
3. Connect the Send socket (3) of the LEHLE PARALLEL SW II to the input of your effects unit.
4. Connect the output of your effects unit to the Return socket (5) of the LEHLE PARALLEL SW II.
5. Use the Send (9) and Return (11) controllers on the LEHLE PARALLEL SW II to fine-tune the level of the effects unit connected.
6. Use the MIX controller (10) on the LEHLE PARALLEL SW II to select the desired effect level.
7. Use the True-Bypass switch (12) to switch between the instrument's original signal (LED white) and the mix of original and the effect signal (the LED will then show blue).
8. Done!

No sound losses in Bypass mode: The LEHLE-Switch (12), working with a micro-controller and an intelligent True-Bypass-Relay-Circuit with active pop suppression circuit, makes sure that the signal passes through a switched-off LEHLE PARALLEL SW II with no loss (genuine "True-Bypass"). 

Check the overall sound for any phase cancellations and, if necessary, press the phase reverse switch (4) on the LEHLE PARALLEL SW II. 

## LEHLE PARALLEL SW II AS PARALLEL EFFECTS LOOPER IN THE LOOP OF AN AMPLIFIER



### DEVICE CONNECTION

	Input	Amplifier send
	Send	Input effect(s)
	Return	Output effect(s)
	Output	Amplifier return

Many amplifiers feature only one serial effects loop, which means that the signal is routed entirely via this loop between the preamp and the power amplifier.

In many cases, the level on the serial effects loop will be too high for any effects pedals which you might try to connect at this point. The LEHLE PARALLEL SW II enables you to adjust the level for these effects optimally by turning the Send controller (3) down slightly. Turn the Return controller (5) up again, to increase the level back to that of the amplifier's effects loop.

The signal will often lose warmth, intensity and depth - everything that makes up the unique sound of a good tube amplifier! - when digital effects processors are used

in a serial effects loop. With the LEHLE PARALLEL SW II, however, you can add the effect signal to the original sound - with the pleasing result that you lose none of your amplifier's excellent sound characteristics and don't have to sacrifice the effects you love.

### HOW TO DO THIS

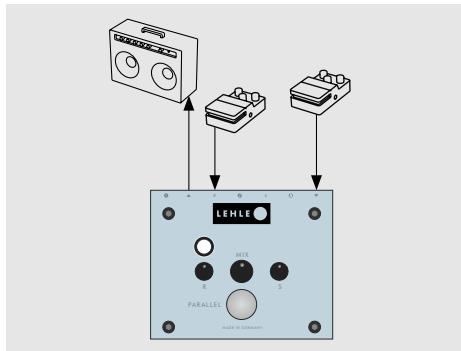
1. Connect the Send output from the serial effects loop of your amplifier to the Input socket (1) of the LEHLE PARALLEL SW II.
2. Connect the Output socket (6) of the LEHLE PARALLEL SW II to the Return input of your amplifier's serial effects loop.
3. Connect the Send socket (3) of the LEHLE PARALLEL SW II to the input of your effects unit.

4. Connect the output of your effects unit to the Return socket (5) of the LEHLE PARALLEL SW II.
5. Use the Send (9) and Return (11) controllers of the LEHLE PARALLEL SW II to fine-tune the level of the effects unit connected.
6. Select the desired effect level using the MIX controller (10) on the LEHLE PARALLEL SW II.
7. Use the True-Bypass switch (12) to switch between the original signal (LED white) and the mix of the original and effect signals (the LED will then show blue).
8. Done!

Check the overall sound for any phase cancellations and, if necessary, press the phase reverse switch (4) on the LEHLE PARALLEL SW II.



## LEHLE PARALLEL SW II AS MIXER FOR TWO INPUT SIGNALS



### DEVICE CONNECTION

	Input	Signal source 1
	Return	Signal source 2
	Output	Signal input

The LEHLE PARALLEL SW II can also be used to mix two different signals.

Since the regular Input (1) and the Return (5) input are both high-impedance, all conceivable signals can be processed and mixed, mono as well as stereo, including signals that are otherwise difficult to process.

It doesn't matter whether the signal is a low-impedance signal from a computer, keyboard or mixer, or a high-impedance signal from passive pickups.

The LEHLE PARALLEL SW II is frequently used in this context for mixing of two preamps, effects units or for musicians who like to mix their instrument signals

(electric guitar or bass) plus a synthesizer and don't want to switch but rather mix their signals live - it optimally combines these signals into one overall signal.

### HOW TO DO THIS

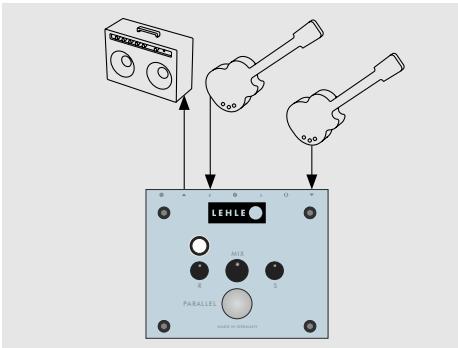
1. Connect the output from your first device to the Input socket (1) of the LEHLE PARALLEL SW II.
2. Connect the output from your second device to the Return input (5) of the LEHLE PARALLEL SW II.
3. Set the sensitivity for the second unit using the Return controller (11) on the LEHLE PARALLEL SW II.
4. Set the required mixing ratio for the two units using the MIX controller (10) on the LEHLE PARALLEL SW II.

5. Connect your amplifier or another target device to the Output socket (6) of the LEHLE PARALLEL SW II.

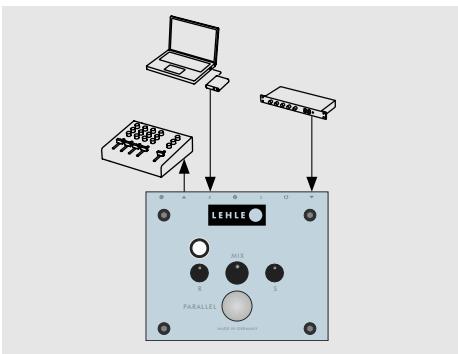
6. Use the True-Bypass switch (12) to switch between the mix of device 1 + device 2 (the LED will then show blue) and the signal from device 1 only (LED white).

7. Done!

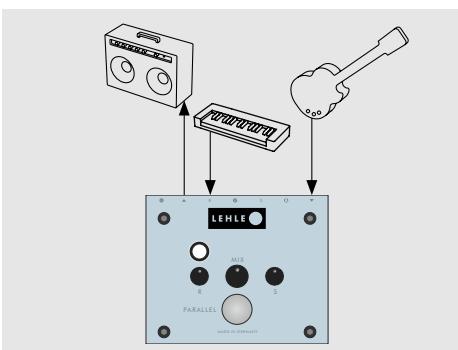
#### MORE EXAMPLES



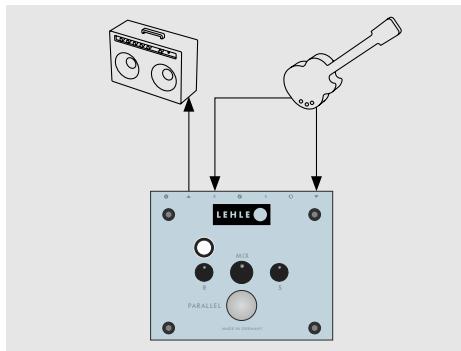
If you connect a mono signal to the input socket (1) and a stereo signal to the return socket (5), please press the mono-to-stereo switch (2) too.



Check the overall sound for any phase cancellations and, if necessary, press the phase reverse switch (4) on the LEHLE PARALLEL SW II.



## LEHLE PARALLEL SW II AS MIXER FOR TWO PICKUPS OF AN INSTRUMENT



### DEVICE CONNECTION

	Input	Pickup 1
	Return	Pickup 2
	Output	Amplifier

Many instruments have two different types of pickup, such as one magnetic and one piezo pickups, for example. The LEHLE PARALLEL SW II is excellent at mixing these signals.

Mixing of signals from two different pickups can cause problems with phase cancellations, with the mixed sound then being thin and weak. This problem can be quickly eliminated using the phase reverse switch (4). Press this switch and the phase on the Return input is reversed, and the mixed sound from the two pickups becomes full and rich again.

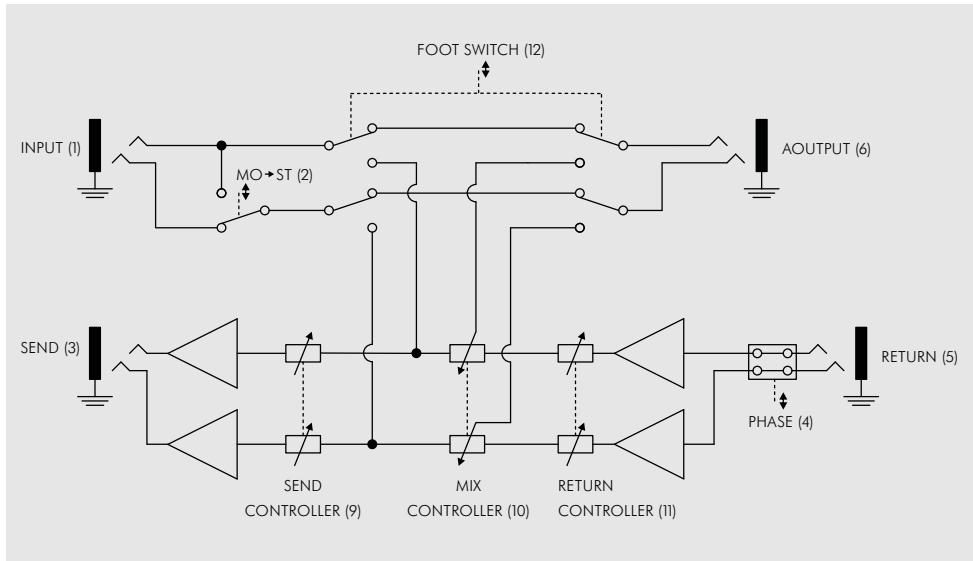
### HOW TO DO THIS

1. Connect your instrument's first pickup to the Input socket (1) of the LEHLE PARALLEL SW II.

2. Connect your instrument's second pickup to the Return input (5).
3. Use the Return controller (11) to set the sensitivity for your second pickup.
4. Use the MIX controller (10) on the LEHLE PARALLEL SW II to set the required mixing ratio for the two pickups.
5. Connect your amplifier to the Output socket (6) of the LEHLE PARALLEL SW II.
6. Check the overall sound for any phase cancellations and, if necessary, press the phase reverse switch (4).
7. Use the True-Bypass switch (12) to switch between the mix of the two pickups (LED shows blue) and the signal from the first pickup only (LED white).
8. Done!

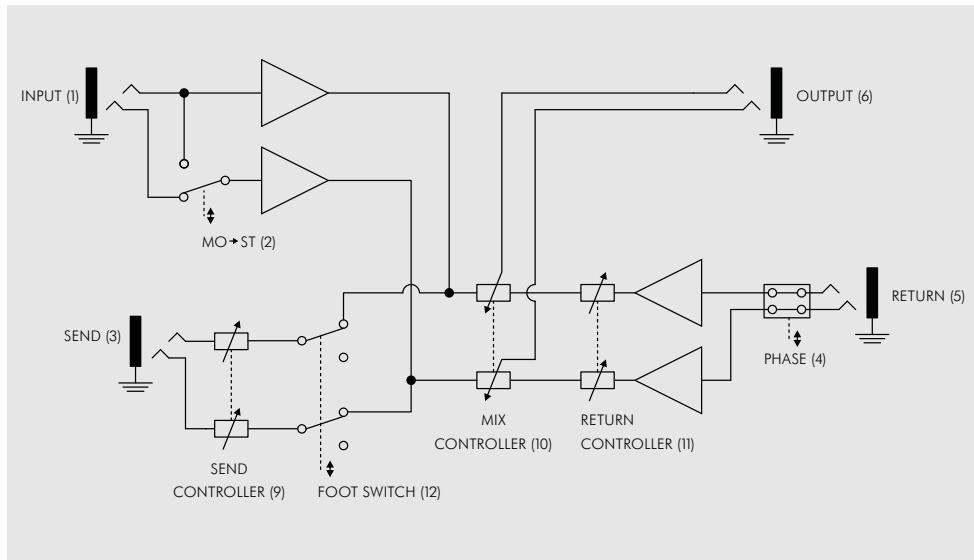
# LEHLE PARALLEL SW II

## SIGNAL FLOW DIAGRAM TRUE-BYPASS



# LEHLE PARALLEL SW II

## SIGNAL FLOW DIAGRAM BUFFERED-BYPASS





LEHLE GmbH · Grenzstrasse 153 · 46562 Voerde · Germany

[www.lehle.com](http://www.lehle.com) · support@lehle.com

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