



ENHANCED OVERDRIVE

User Manual

Congratulations!

The Basswitch Enhanced Overdrive starts where a little distortion is not enough: from subtle harmonics inspired by the compressed valves of a bass amplifier, to warm and pleasant saturation, and even up to a brute distorted signal.

Although there is a complex circuit working on the inside of the pedal, the intuitive operation of the 4 controls makes it simple to find a great sound, due to the intelligent linking of parameters.

When developing the Basswitch Enhanced Overdrive we wanted to focus on the professional musician who is unwilling to compromise on either the sound or technical quality of their equipment.

The Basswitch Enhanced Overdrive is manufactured, assembled and tested in Germany using only the highest quality components available to ensure optimal treatment of the electrical signal from your instrument.

Please take the time to read this manual carefully before operating your Basswitch Enhanced Overdrive.

I wish you every success with your RMI Basswitch Enhanced Overdrive.

Yours,
Jacques Ruppert

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Introduction

The Basswitch Enhanced Overdrive combines a high-quality preamp with a complex gain stage that produces the overdrive. Based on the overtone generator of the Basswitch Sonic Spark, the challenge was to reproduce the original signal in every detail in order to keep its definition.

The Mix control enables you to blend the processed signal with the original, so the instrument keeps its tonal character without losing definition or low end. Whether it's gentle saturation or loud screaming that you desire, the Basswitch Enhanced Overdrive never sounds muddy—a clear benefit in band situations.

With only a few controls the Basswitch Enhanced Overdrive creates a lively and characteristic bass sound, always accurate and easy to control.

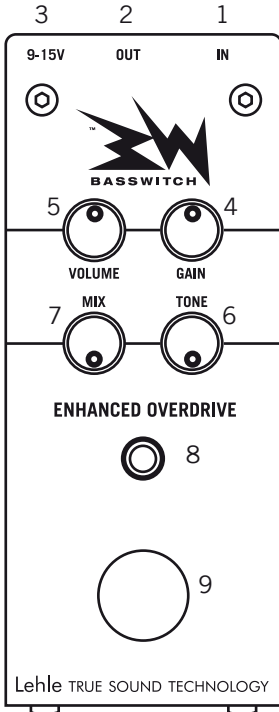
Additional Features

- Lehle "True Sound Technology" (for details please read the chapter "Tech Talk").
- The higher voltage supply (18V) provides the Basswitch Enhanced Overdrive with a wider dynamic range and thus allows adequate processing of signals from both active and passive basses. A switcher to toggle between variable signal strengths is not necessary.
- Specially designed to protect the controls from damage and to prevent inadvertent changes to the settings.
- The design of the housing permits easy installation: the ultra-flat base and removable rubber feet allow the unit to be securely attached to a pedal board using Velcro or similar.

Starting up

1. Turn the VOL and GAIN controls fully counterclockwise to the left (8 o'clock).
2. Turn the MIX and TONE controls to 6 o'clock (centred).
3. Adjust the VOL control clockwise until you reach your desired volume.
4. Add the desired amount of saturation and overdrive using the GAIN control. (If required, use the VOL control to compensate for the increase in volume.)
5. Turn the TONE control clockwise to the left to get more metallic brilliance. Dial it to the right (counterclockwise) to get a warm saturation.
6. Adjust the MIX control to the desired position: 10 o'clock is the processed signal; 2 o'clock is the original signal.

Description



1. Input socket

Connect your instrument here.

The Bassswitch Enhanced Overdrive is built to process signals from both passive and active pickup systems.

2. Output socket

Connect your amp, preamp or DAW here.

3. External power supply

Connect your external power supply here (9-15V DC / AC with a standard 5.5 x 2.1mm connector).

For the Bassswitch Enhanced Overdrive an external power supply is required.

This should provide a minimum of 9V and no more than 15V DC or AC. The voltage supplied is internally rectified, filtered, stabilized and then brought to 18V.

Note: To get the best out of your pedal setup we recommend that you use high-quality power supplies with isolated output sections in your setup!

Warning: The Lehle power supply (item no. 7014) with the connector acc. to DIN 45323 is not suitable.

4. GAIN control

From 0 (bottom left, 7 o'clock) clockwise to 100 % (bottom right, 5 o'clock).

The GAIN controls the intensity of the overdrive. Depending on the adjustment of TONE (6) and MIX (7) you get different results. Since GAIN amplifies the saturated and the original signal there's a change in volume to be expected. Compensate the level increase by dialling the VOL control (5) to the left, while turning the GAIN to the right.

5. VOL control

From 0 (bottom left, 7 o'clock) clockwise to 100 % (bottom right, 5 o'clock). Use this control to adjust the output volume between switched-on and switched-off state.

The VOL controls the overall volume of the pedal.

6. TONE control

from "brilliant" (top left, 11 o'clock) to "warm" (top right, 2 o'clock) Adjust the colouring of the saturation and overdrive.

The TONE control is an equalizer placed before the gain stage allowing you to either boost or cut certain frequencies. It changes not only the colouring of the distortion, but also the frequencies being emphasized. If the TONE control is at 11 o'clock you will be boosting a midrange band at around 500 Hz by up to 12 dB which smoothly extends with a boost of around 5 dB at 2 kHz.

If the TONE control is at 2 o'clock, the lower midrange band at around 300 Hz will be cut by up to 10 dB.

7. MIX control

From "dry" (top right, 2 o'clock) clockwise to "wet" (top left, 11 o'clock). Using this control allows mixing the original signal with the overdriven one.

In order that even the most distorted signal doesn't lose its weight and power you can blend in the original signal at your desired level.

8. Status LED

Overdrive on/off.

The LED turns blue when the overdrive is turned on. In bypass mode the LED turns white.

9. Footswitch

Press this switch to activate the overdrive function.

By using this switch you activate the overdrive of the Bassswitch Enhanced Overdrive or switch to bypass. If the overdrive is turned on the LED shines blue, in bypass mode the LED is white.

Tech Talk

True Bypass and True Sound

Today more and more effects pedals feature true bypass switching to completely bypass the pedal in the signal routing when the pedal is switched off. The target of this design is to ensure that the pedal does not affect the electrical signal when it is switched off. This way the sound is left unaltered - in theory. In practice, however, connecting several pedals featuring a true bypass design in series does not improve the sound or keep it unaltered at all. Long cable runs and multiple connections lead to a weak and lifeless sound. On large pedal boards the overall length of the cable is enough for the capacitance of the cable to have a negative effect on the sound. The capacitance of the cable acts as a low-pass filter (= the low frequencies pass through the filter while the high frequencies are filtered out). The price and quality of the cable you are using will not change this physical phenomenon. A solution would be to use only devices with buffered bypass design instead of true bypass. This, however, is only a good solution if the buffer is of very high quality. If several units with buffered bypass are connected in series it only needs one buffer to be noisy, to cut the dynamics of the sound signal or to negatively affect the sound in any other way for the sound of the whole effects chain to be spoiled. As the saying goes: "a chain is only as strong as its weakest link". In addition, the noise of the individual buffers adds up to produce audible noise (It is a fact that every buffer produces some noise, even if it cannot be heard when only a single buffer is used). The ideal solution is to have a very high-quality buffer at the beginning of the chain that brings the signal down to a very low impedance. This makes the signal insensitive to the length of the cable. It is important, however, that this buffer is of the highest quality with the dynamic range and headroom necessary to ensure that all the details of the bass signal stay are retained unaltered. The effects pedals in the downstream should then ideally have true bypass so that they will not have a negative effect on the now buffered signal, as the true bypass design does not reduce dynamics and headroom or produce any noise. *Conclusion: Having a Lehle True Sound buffer at the beginning of your effects chain combined with good true bypass equipped effects in the loop guarantees the best sound.*

What is Lehle True Sound Technology?

Lehle True Sound Technology is a combination of several electrical design measures with only one aim in view: to transmit the sound and the character of the instrument without altering it. The voltage supplied to the Basswitch Enhanced Overdrive is internally rectified, filtered and stabilized and then brought to almost 18 V. This gives enough headroom to guarantee an open and dynamic sound in all situations without losing any detail, even when confronted with pickup power peaks from plus 7 to minus 7 volts.

The buffers are designed to effortlessly handle signals reaching the megahertz range. At the output, the frequency bandwidth is limited to the audible frequency range to prevent HF interference disturbing the electronic circuitry. This guarantees optimal transient response by the circuitry and is key to obtaining a sound that is transparent and, above all, cuts through.

For switching, Lehle True Sound Technology exclusively uses gold-plated

contact relays and/or gold-plated switches. The decaying signal from a string is so weak that contact materials with lower conductivity have a negative impact on the sound. Ordinary footswitches use contact materials developed to switch high voltages (e.g. electrical power tools) as this is their main field of application. This can be heard, for example, when, after a switch has been in use for some time, a decaying tone starts to break off abruptly. Relays and switches with gold-plated contacts do not have this problem and even the smallest electrical signals can be transmitted for years without being negatively affected. In addition, the relays used in the Basswitch Enhanced Overdrive have a lifetime about 100 times as long as those used in ordinary footswitches.

Together with typical Lehle electronic circuitry to reduce the switching pop of relays, the combination of the above design features represents today's state-of-the-art solution for an uncompromising preservation of the signal, sound and character of an instrument.

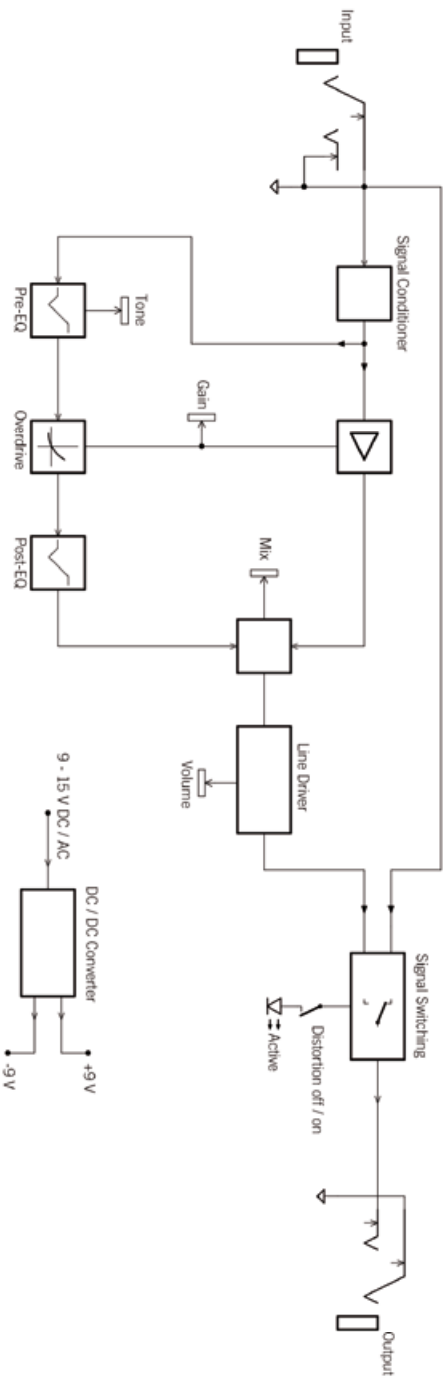
Working principle of the Basswitch Enhanced Overdrive footswitches

Footswitches are pressed thousands of times during their long lifetimes – sometimes sensitively but sometimes more brutally depending on the situation and the musician's temperament. An ordinary footswitch will switch up to 20,000 times before wearing out mechanically or electrically, which means that either it will stop working altogether or the signal will start to lose transparency and dynamics.

The Basswitch Enhanced Overdrive is equipped with high-quality Lehle footswitches. Here the foot of the musician does not press an ordinary footswitch but an actuator button that activates a pushbutton inside the Basswitch Enhanced Overdrive via a metal lever. Because the actuator button and the internal pushbutton are not directly connected, the load exerted by the foot is absorbed by the actuator button and the housing, preserving the circuit board from mechanical stress. The design is as robust as possible and the actuator button is mounted in a special socket making for easy and silent operation.

Inside the Basswitch Enhanced Overdrive the impulse from the pushbutton activates special gold-plated relays via discrete logic circuitry. This way the switching is done only via high-quality relays and thus guaranteeing absolutely reliable and loss-free switching of very sensitive signals. The switching technology and the gold-plated relays in the Basswitch Enhanced Overdrive are designed to operate for up to two million switching cycles!

Circuit diagram



Technical data:

Weight:	400 g
Length:	14.5 cm
Width:	6.0 cm
Height:	4.5 cm
Supply Voltage:	9-15 V DC, 9-15 V AC
Current Consumption:	max. 78 mA at 9 V DC max. 85 mA at 15 V DC
Frequency response:	10 Hz - 30 kHz (-0.5 dB, re -20 dBu input, Mix = dry)
Residual Noise:	< -114 dBu (22 Hz - 22 kHz, Gain and Volume = max, Tone = mid, Mix = wet)
Input Impedance:	2.8 MOhm
Output Impedance:	100 Ohm
Maximum Input Level:	+5 dBu (< 1 % THD, 1 kHz, Mix = dry)
Maximum Output Level:	+12 dBu (< 1 % THD, 1 kHz, Mix = dry)



Ruppert Musical Instruments
20a, rue de Bascharage
L - 4995 Schouweiler
Luxembourg
Tel./Fax: 00 352 691 379050
Web: www.rmi.lu
E-Mail: jacques@rmi.lu