Lehle Mono Volume
User Manual

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www.lehle.com

Dear Musician!

Thank you for purchasing your **Lehle Mono Volume**!
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 Mono Volume** comprises only the very best components. Every module of your **Lehle Mono Volume** has been made and tested in Germany.
To make sure that you can enjoy your **Lehle Mono Volume** for a long time, it is of extremely robust design and construction. 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

I wish you much pleasure and success with your **Lehle Mono Volume**!

Burkhard Georg Lehle

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The **Lehle Mono Volume** is a volume pedal equipped with a precise magnetic sensor enabling it to operate almost wear-free. This sensor uses the Hall effect, named after Edwin Hall, to measure the strength of magnetic fields. In the **Lehle Mono Volume** the Hall sensor, which is made in Germany, is accurately calibrated to the built-in magnet and the control range of the pedal. The pedal moves only the magnet, while the distance is measured by the Hall sensor which controls a VCA. A premium Blackmer VCA (= Voltage Controlled Amplifier) from the United States replaces in this case the mechanical potentiometer. The principle of the voltage-controlled amplifier is based on the fact that gain can be varied by the control voltage coming from the Hall sensor. This technique allows to operate more precisely than conventional mechanical potentiometers or optical sensors used by the standard volume pedals. In addition the potentiometer-typical noise and the complicated adjustment are eliminated.

Over the entire control range the **Lehle Mono Volume** transmits the full sound spectrum of the connected instrument. The input and output impedance always stay the same, ensuring that there will be no damping of higher frequencies as with potentiometers.

Internally, the input voltage coming from the power supply socket of the pedal is rectified, then filtered, stabilized and doubled to 18 V, thus achieving a total dynamic range of 110 dB.

The volume control of the **Lehle Mono Volume** ranges from -92 dB to 0 dB - so from a virtually muted level to the same volume. With a potentiometer a gain up to +10 dB boost can be additionally adjusted.

The **Lehle Mono Volume** runs mechanically extremely smooth and steady, as it is equipped with low-friction bearings of a high-performance polymer, and there is no mechanical transmission of the pedal to other components. By means of an adjusting screw the mobility of the pedal can be modified very precisely.

Furthermore, the **Lehle Mono Volume** has a buffered direct out which can supply a tuner, DAW or a second amp without affecting the sound.

Technical data

Weight:	1,620 g
Length:	26 cm (10.24'')
Width:	10 cm (3.24'')
Overall height:	6.6 cm (2.6'')
Voltage:	9 - 15 V DC or 7 - 12 V AC
Power consumption:	50 mA
Frequency range:	50 Hz - 100 kHz (all controls in middle position)
THD:	< 0,05 % at 1 kHz, -10 dBu
Impedance input:	2 MOhm
Impedance output:	500 Ohm
Signal-to-noise ratio:	-102 dB at 1 kHz, 0 dBu A weighted (control in "unity gain" position)
Max level:	3 V RMS (ca. 12 dBu at 12 V input voltage)
Gain control (max amplification):	+10 dB

General description

1. Input socket

■ *Connect your instrument here.*

The **Lehle Mono Volume** processes signals of electric and acoustic stringed instruments, as guitars and basses, steel string and nylon string acoustics and acoustic string instruments of all kinds (violins with pickup systems). The input impedance of the **Lehle Mono Volume** is approx. 2 MOhm. It does not matter whether the connected signal has high or low impedance, or if it comes from a passive or an active pickup system.

2. DIR Out

■ *Connect your tuner or your amp here.*

This output supplies the input signal with exactly the same level. The DIR Out is buffered, which means you can connect both high and low impedance inputs to the DIR Out without influencing the sound of the input signal. If you are using a tuner, you can mute the VOL Out (for tuning) and the DIR Out will provide a signal for the tuner.

3. Gain control

■ *Use the gain control to adjust the level of the preamp signal.*

The gain control influences the maximum volume of the **Lehle Mono Volume**. The gain control knob consists of black anodized aluminium and is recessed into the housing. It can be easily turned by placing your fingertip in the top depression, with the great advantage that, thanks to the recessed design, the setting cannot be inadvertently disturbed on stage or during transportation. With the gain control closed up to the stop (7:00 o'clock position) and the pedal in level position, the signal is neither amplified nor attenuated, this position is "unity gain".

Turning this control to the right will increase the signal by approx. 10 dB. The frequency range is not influenced by this control.

4. Output socket

■ *Connect your target device here.*

For instance, this would be an amplifier, a mixer panel, a stage box or a sound card. This output, like the DIR Out has low impedance and does not change its output impedance when the volume is altered via the volume pedal.

5. External power supply

■ *Connect your external power supply here (9-15 V DC or 7-12 V AC).*

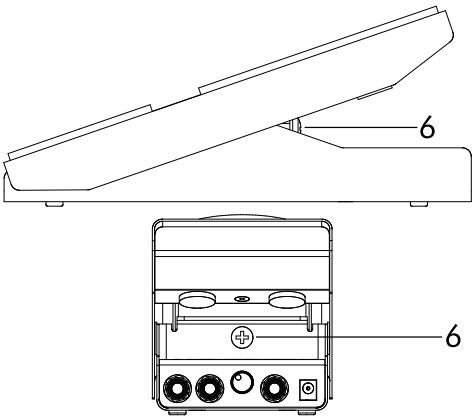
For the **Lehle Mono Volume** an external power supply is required.

This should provide a minimum of 9 V and no more than 15 V DC, but alternatively you can also connect an AC voltage source with more than 7 V or up to 12 V. The polarity is not relevant. The voltage supplied is internally rectified, filtered, stabilised and then brought to 18 V.

6. Pedal Feel

■ *Turn this screw to adjust the feel of the pedal.*

If you turn this screw clockwise, you tighten the brake. This way the pedal feel will be heavier. Turning the screw counterclockwise, diminishes the resistance when pressing and gives the pedal a lighter feel.



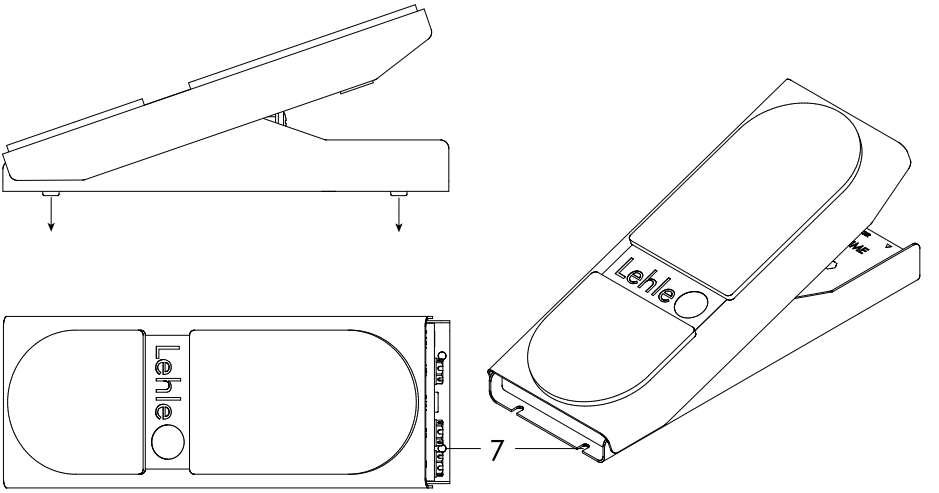
7. Base and fixing

■ *You can use the fixing screws supplied with the **Lehle Mono Volume** to fix it to a base plate (or to a pedal board, for example).*

The base of the **Lehle Mono Volume** can be easily attached on any base plate with Velcro or the supplied screws. First, we recommend you to pull out the rubber pads on the bottom. If a rubber buffer gets lost in this process or breaks, you will get a replacement at any time.

Fixing the **Lehle Mono Volume** with screws:
Place the volume pedal without the rubber buffers in the position where you want to attach it to the board. Use a fine-point pen or a sharp pencil to sketch the subsequent screw holes through the mounting holes onto the base plate. Now drill at the site of the later screw holes a hole with a diameter of approximately 2.5 mm (1/10 inch). Then turn in the two screws for the U-shaped mounting holes together with the washers just halfway.
Slide the volume pedal with the U-shaped mounting holes under the screw heads of the screws already turned in. Make sure that the washers are placed between the bottom plate of the **Lehle Mono Volume** and the screw head, to protect the paint.
Now you can turn in the remaining two screws and spacers through the two round mounting holes next to the jack plugs. Tighten those screws only slightly, then fix the screws you first turned in. This type of mounting is extremely stable and can also be easily removed.

Tip: In case you prefer a Velcro solution for your pedal board we recommend to write down the serial number of the pedal for eventual support matters before covering it.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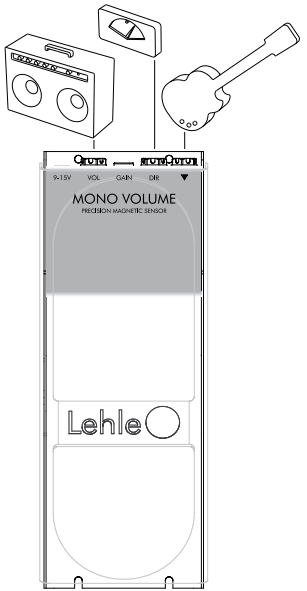
Lehle
MONO VOLUME
PRECISION MAGNETIC SENSOR
9-15V
VOL
GAIN
DIR

Lehle Mono Volume as a classic volume pedal



The main purpose of the **Lehle Mono Volume** certainly is adjusting the volume of the connected instrument. The DIR output can be used for a tuner to silently tune the instrument with the VOL output volume turned down. Of course, this output can remain free.

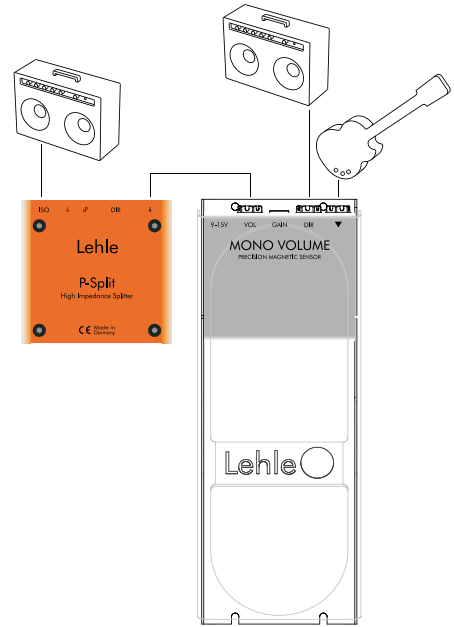
Device connection:

Input (1) → Instrument
Output DIR (2) → Tuner or nothing
Output VOL (4) → Amp, mixer

How to do this:

1. Connect your instrument to the input jack (1) of the **Lehle Mono Volume**.
2. Connect a tuner to the jack named DIR (2) or leave this input vacant.
3. Connect the VOL jack (4) to the input of your amp.
4. Adjust the maximum volume using the gain control (3).
5. There you go!

Lehle Mono Volume with two amps



With this setup you can blend your original sound with the sound of a second amp. The amp connected to the DIR out is always on, while the second amp can be faded in and out smoothly via the VOL out. Using the **Lehle P-Split II**, as shown here between the VOL output and the second amplifier is optional. In case ground loops or phase cancellations occur, these will be eliminated effectively by using the **Lehle P-Split II**.

Device connection:

Lehle Mono Volume

Input (1) → Instrument
Output DIR (2) → Amp 1
Output VOL (4) → Amp 2

Lehle P-Split II

Input → Output VOL (4)
ISO Out → Amp 2

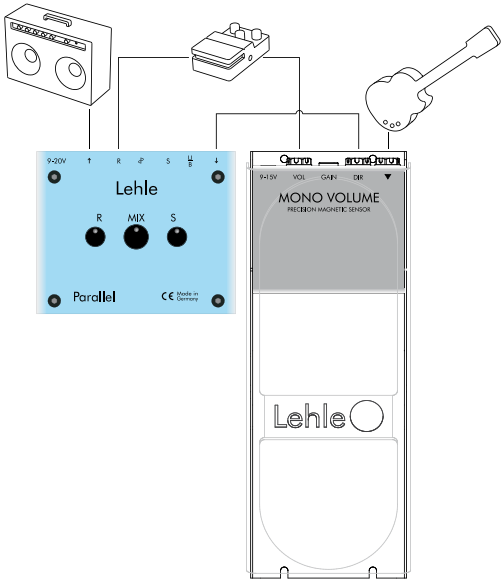
How to do this:

1. Connect your instrument to the input jack (1) of the **Lehle Mono Volume**.
2. Connect the amp that shall be always on to the

DIR out (2).

3. Connect the VOL jack (4) to the input of your second amp.
4. Adjust the maximum volume for your second amp using the gain control (3).
5. If now hum or noise occurs when the pedal is in level position, we recommend using the **Lehle P-Split II**.
6. To include the **Lehle P-Split II**, take the plug from the input of the second amp and connect it to the input of the **Lehle P-Split II**.
7. Connect the ISO output of the **Lehle P-Split II** with the input of your second amp.
8. Now press the ground switch of the **Lehle P-Split II** and find out in which position you have the least noise. In order to eliminate phase cancellation, press the phase switch.
9. There you go!

Lehle Mono Volume to blend effects



Many effects, like delay, chorus or reverb sound much better when they are blended with the dry instrument signal. This can also be done with the **Lehle Mono Volume**. However, you will need a mixer - in our example, we are using a **Lehle Parallel M**.

Device connection:

Lehle Mono Volume

Input (1) → Instrument
Output DIR (2) → Input **Lehle Parallel M**
Output VOL (4) → Input effects unit

Lehle Parallel M

Input → Output DIR (2)
Return R → Output effects unit
Output → Amp

How to do this:

1. Connect your instrument to the input jack (1) of the **Lehle Mono Volume**.
2. Connect the DIR out (2) to the input of the **Lehle Parallel M**.
3. Connect the VOL jack (4) to the input of the effects unit.
4. Connect the output of the effects unit to the return jack of the **Lehle Parallel M**.
5. Connect the output of the **Lehle Parallel M** to the amp.
6. Adjust the maximum volume for the input of your effects unit with the gain controller.
7. Use the MIX controller on the **Lehle Parallel M** to set the required mixing ratio for the effects signal and the dry signal while the **Lehle Mono Volume** is in level position.
8. If necessary, press the phase switch on the **Lehle Parallel M**.
9. There you go!

Lehle Mono Volume signal flow diagram