LIGHT PEDAL
optical spring | reverb system

LIGHT PEDAL IS THE WORLD'S FIRST ANALOG OPTICAL SPRING REVERB SYSTEM

THAT USES

INFRA-RED OPTICAL SENSORS

TO HARVEST THE FULL TIMBRAL
AND HARMONIC RANGE
OF A SPRING REVERB TANK

HOW IT WORKS

The LIGHT PEDAL's foundation is a traditional spring reverb system - a combination of three elements:

INPUT TRANSDUCER
(spring exciter)

Much like a speaker driver, the Input Transducer turns audio signal into mechanical impulses, thus sending vibrations along the length of the springs.

SPRINGS

The reverb's sound depends largely on the tension and length of the springs.

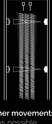
The Output Transducer completes the circuit by converting mechanical impulses from the vibrating spring back into audio signal.

OUTPUT TRANSDUCER
(pickup)

There can be a lot of complexity in the movement patterns that occur in the spring during the reverberation process, especially near the input transducer.

However, due to the spring's elasticity, by the time vibrations travel to the output transducer we are mostly hearing the spring's own resonant frequencies. **This is why all spring reverbs have such a particular sound.**

OPTICAL SENSORS



To capture the **full range of the spring's movements**, the LIGHT Pedal uses multiple sets of special **Infra-Red optical sensors** that act as photoelectric pickups.

Each set of IR sensors is directed at a different point on the moving spring's surface, thus giving access to a whole range of additional reverb textures / tones.

Also, **the optical sensors are able to detect much finer movements** than the output transducer which makes longer decays possible, as well as a much wider frequency response, including subharmonics and overtones.

Additionally, some amazing modulation and tremolo effects can be achieved by scrolling through the optical sensors or by switching them on and off.

CONTROLS

MIXING DRY SIGNAL WITH REVERB

Three separate volume levels for your **DRY signal**, for the traditional **SPRING signal** (produced by the spring tank's Output Transducer) and the **OPTICAL Signal**.

The TONE control will affect both the SPRING and the OPTICAL signals while leaving the DRY signal as is.

EFFECT MODES • CTRL KNOB

This 6-way selector switch gives you access to a few different playing modes:
1 optics,
2 sweep,
3 trem,
4 reflect,
5 feedback,
6 harmonic.

In each of the modes the CTRL knob adjusts different parameters to further fine-tune your sound.

1 OPTICAL

Lets you to choose the exact pair of optical sensors that you want to use.

Use the CTRL knob to scroll through the optical pairs.

As a general rule, **moving towards the middle of the spring will produce warmer and richer reverb textures**.

2 SWEEP

Sweep is a modulation mode that rhythmically scrolls back and forth through the different optical sensor pairs.
The resulting sound is a very special and rich type of reverb/chorus.

Use the CTRL knob to adjust the rate of the sweeping motion.

3 TREM

This is an optical tremolo mode, that will start switching the optical sensors on and off rhythmically.

Use the CTRL knob to adjust the rate from slow swooshing tremolo to an intense strobe-ing sound.

4 REFLECT

This mode is a lo-fi delay that will send all signal back into the reverb tank with three repeats.

Use the CTRL knob to adjust the rate of the delay.

5 FEEDBACK

Feedback is a self-oscillation mode that lets you create very special sound effects and "wall-of-sound" type distorted reverb pads.

Lots of potential uses when paired with an expression pedal.

Use the CTRL knob to adjust the amount of self-oscillation from subtle trails to complete out-of-control madness.

6 HARMONIC

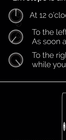
In harmonic mode the Spring Tank is driven by an analog Octava-inspired circuit, which produces a huge amount of overtones and harmonics within the spring tank.

Think of it as a shimmer reverb effect, but only produced naturally within the spring tank.

Use the CTRL knob to adjust the shimmer effect's range and in many cases to dial in a specific desired harmonic. It is a very special and unique sound that works amazingly well with all melodic instruments - from clean guitars to brutally distorted Sawtooth Synths.

With these effect modes, you can either use the optical signal on its own, or also combine it with the spring tank's output for a multi-layered effect.

For example: Fast Optical Tremolo + constant Spring Tank Reverb.



DRIVE

Determines the amount of signal being sent into the spring tank in all playing modes.

When turned to minimum there will be no Reverb at all.

Placing it at 12 o'clock is the safe bet.

When maxed out, the spring tank will start gently breaking into distortion, as well as affecting the textures of all optical signals.

ENV (ENVELOPE)

Envelope is another parameter that affects all effect modes.

At 12 o'clock it is neutral, and does not affect the Pedal's sound.

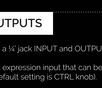
To the left, all reverb is gated - the more you play, the more reverb. As soon as you stop, the reverb gets cut out.

To the right, all reverb sounds are ducked - no reverb while you play, as soon as you stop, the trails appear.

TAILS		LATCH
With TAILS switched ON, you will be able to smoothly turn the LIGHT Pedal off, while preserving the reverb's natural decay trails.	on	When LATCH is ON the LIGHT Pedal's footswitch will act as a standard latching on/off footswitch.
When switched OFF, the reverb trails will be cut as soon as the LIGHT Pedal is shut off.	off	When LATCH is OFF the LIGHT Pedal's footswitch will act as a momentary effect switch.

For example - set your LIGHT Pedal to feedback mode, turn the CTRL knob all the way up, and use the momentary footswitch to add occasional bursts of feedback into your solos... Just an idea...!

SHOCK SENSOR



As we all know, spring reverbs can be sensitive to shaking stages, heavy stomping and earthquakes.

That is why the LIGHT Pedal features a special shock-sensor mode!
Powered by an accelerometer chip, the LIGHT Pedal can instantly detect physical impact (measured as G forces) and instantly shut off the audio output, as soon as a blow or a shaking motion is detected!

The sensor offers three levels of shock protection: Off, Soft and Hard.

INPUTS & OUTPUTS

The LIGHT Pedal is a MONO pedal with a ¼' jack INPUT and OUTPUT.

The LIGHT Pedal also features a ¼' jack expression input that can be assigned to multiple potentiometers (default setting is CTRL knob).

Product Dimensions	WLH 105 x 190 x 40 mm (4.1 x 7.5 x 1.6 in)
Product Weight	1060 g (2.3 lbs)
Spring Tank	3 Springs Type, 100mm
Input Impedance	1MΩ
Max Input Level	+6.8dBu
Output Impedance	100Ω
Max Output Level	+6.8dBu
Peak Power Consumption	4W
Mean Power Consumption	0.9W
Power Requirements	500mA min 9VDC center negative 2.1 x 5.5 mm plug

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