

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

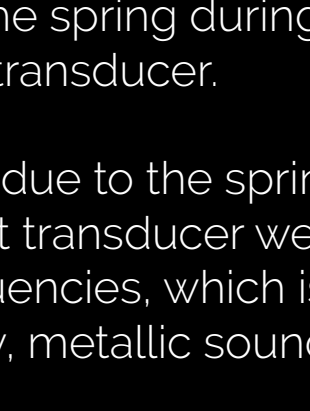
GCA was founded with a single mission in mind - to help spark a new wave of originality and innovation in the field of music technology and audio electronics. We are constantly searching for new ways to create and manipulate sound, and we work hard to produce audio tools of the highest quality.

The LIGHT Pedal combines all the best features of a classic spring reverb with an innovative optical sensor system and a powerful effects section that opens up countless new types of reverb textures and sounds never heard before.

HOW IT WORKS

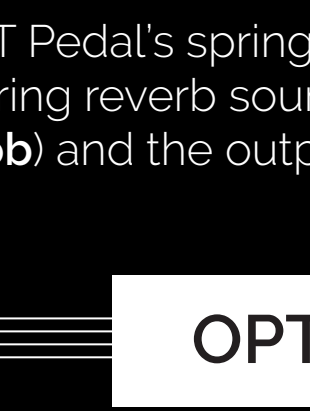
The LIGHT Pedal's central component and main source of sound is a traditional spring reverb tank, consisting of three major elements:

INPUT TRANSDUCER (spring exciter)

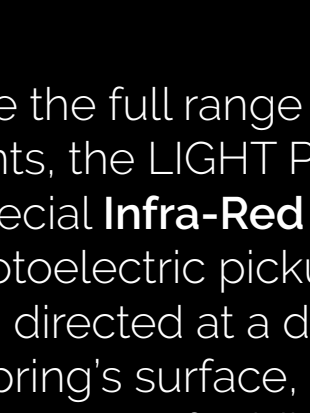


Much like a speaker driver, the Input Transducer converts audio signal into mechanical impulses, thus creating vibrations along the springs.

SPRINGS



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



OUTPUT TRANSDUCER (pickup)

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

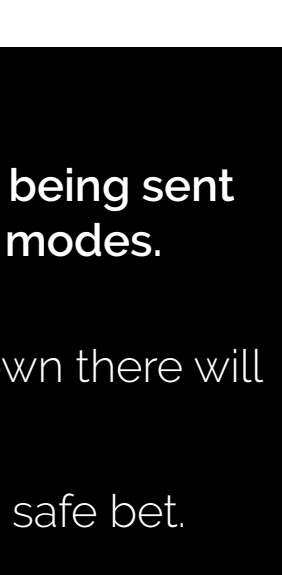
There can be a lot of complexity in the movement patterns that occur in the spring during the reverberation process, especially near the input transducer.

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

The LIGHT Pedal's spring output (**spring knob**) offers a classic high quality spring reverb sound with the option to adjust the spring "drip" (**drive knob**) and the output signal's tone (**tone knob**).

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 and tones.



The optical sensors are also 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.

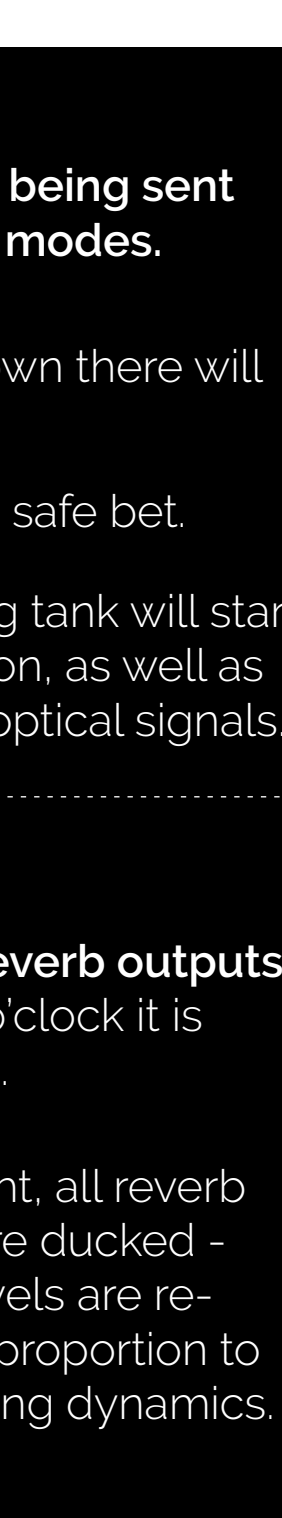
Additionally, some amazing modulation and tremolo effects can be achieved by scrolling through the optical sensors or by switching them on and off (**optical effects**).

CONTROLS

MIXING DRY SIGNAL WITH REVERB

The LIGHT Pedal offers 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.



When using **sweep** or **trem** optical modes, you can either use the optical signal on its own, or combine it with the spring tank's output for a multi-layered effect.

For example: fast optical sweep + constant spring tank reverb.

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

- When turned all the way down 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.

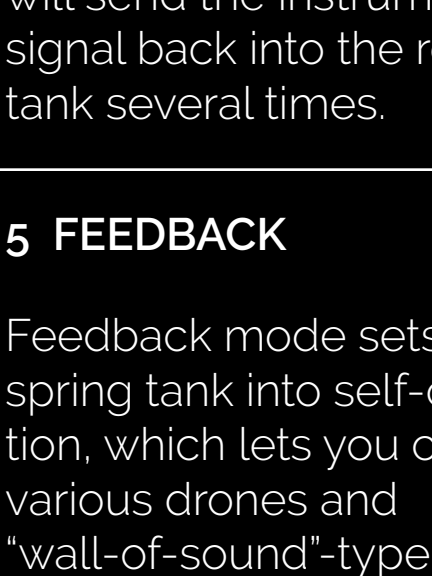
GATE
Gate is also a global parameter that affects both reverb outputs and all effect modes. When the Gate knob is at 12 o'clock it is neutral and does not affect the LIGHT Pedal's sound.

To the left, all reverb is gated - the louder you play, the more reverb. As soon as the instrument's signal stops, the reverb cuts out.



To the right, all reverb sounds are ducked - reverb levels are reduced in proportion to your playing dynamics.

EFFECT MODES + CTRL KNOB



The **6-way selector knob** gives you access to different effect modes. The first three (optics, sweep, trem) are optical effects, whereas the reflect, feedback and harmonic effects occur within the spring tank itself.

1 OPTICS
Lets you choose a specific combination of optical sensors.

Use the **CTRL knob** to select different optical sensor pairs (opt. calib).

Each sensor combination will have a slightly different texture, as well as a different resonant frequency. As a general rule, **moving towards the middle of the spring will produce warmer and richer reverb textures**.

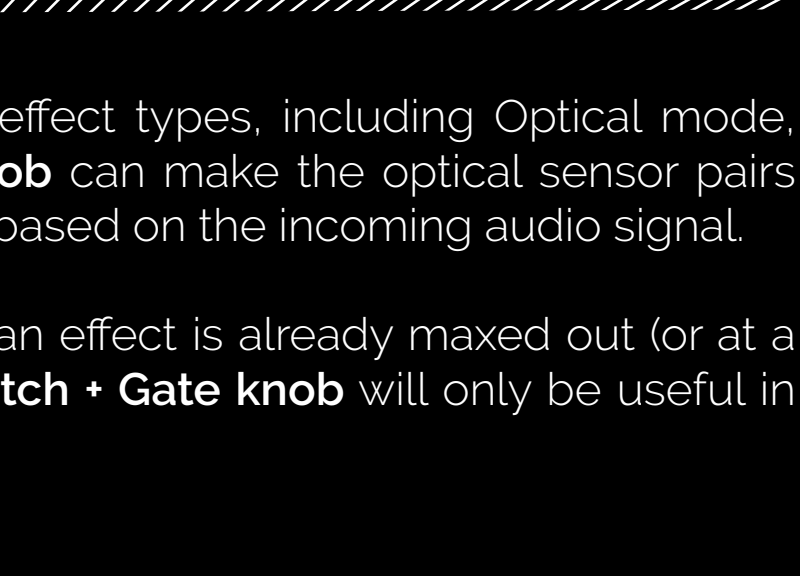
2 SWEEP
Sweep is a modulation mode that rhythmically scrolls back and forth through the different optical sensor pairs.

CTRL knob adjusts the rate of the sweeping motion.
Use the **CTRL knob** while holding down the pedal's **Footswitch** to adjust the sweep modulation curves.

3 TREM
This is an optical tremolo mode, that turns the optical sensors on and off rhythmically.

CTRL knob adjusts the tremolo rate.
CTRL + Footswitch calibrates the optical sensor pairs.

The tremolo effect can also apply to the spring tank output if the **spring output (1)** level is set equal to or higher than the **optical output (2)** level.



4 REFLECT
This mode is a lo-fi delay that will send the instruments signal back into the reverb tank several times.

CTRL knob adjusts the delay rate.
CTRL + Footswitch calibrates the optical sensor pairs.

5 FEEDBACK
Feedback mode sets the spring tank into self-oscillation, which lets you create various drones and "wall-of-sound"-type distorted reverb pads. Lots of potential uses when paired with an expression pedal, or when in Momentary mode.

Use the **CTRL knob** to adjust the feedback frequency.
CTRL + Footswitch calibrates the optical sensor pairs.

6 HARMONIC
In harmonic mode the spring tank is driven by a special circuit designed to produce a lot of overtones and harmonics. 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 central frequency.
CTRL + Footswitch calibrates the optical sensor pairs.

GATE + EFFECT CTRL

In any one of the 6 effect modes, you can make the CTRL value react to the instrument's input signal. This is achieved by turning **the Gate knob while pressing & holding the pedal's Footswitch**.

For example:

- Set the pedal into **trem mode**
- Set the **CTRL knob** to around 12 o'clock
- Press and hold the footswitch. While holding the footswitch turn the **Gate knob** all the way down.

Now the tremolo rate will slow down as soon as input signal is detected.

Alternatively - you can make the tremolo rate speed up with each strum by **pressing & holding the footswitch and turning the Gate knob up**.

This principle applies to all effect types, including Optical mode, where **footswitch + Gate knob** can make the optical sensor pairs move forward or backwards based on the incoming audio signal.

Note - if the CTRL value for an effect is already maxed out (or at a minimum value), the **footswitch + Gate knob** will only be useful in the opposite direction.

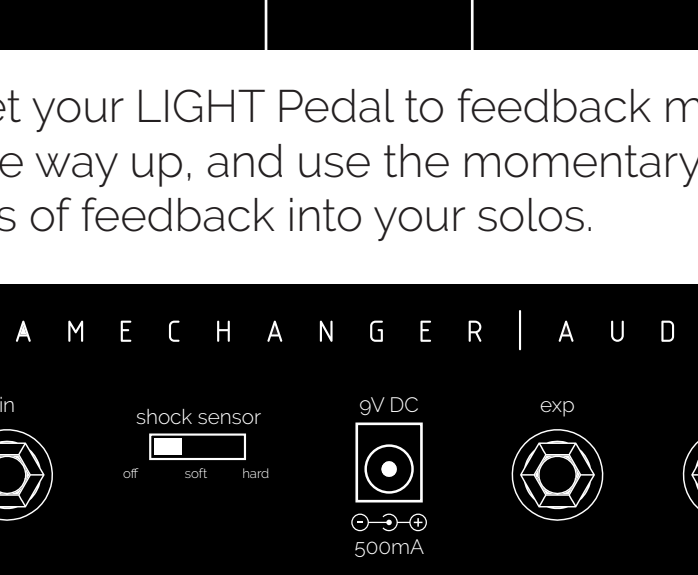
EFFECT COMBINATIONS

As mentioned earlier, the first three effect modes (**optics, sweep, trem**) are so called optical effects, whereas **reflect, feedback** and **harmonic** effects are created directly in the spring tank.

The LIGHT Pedal allows you to combine any one optical effect with either one of the remaining three spring tank effects. For example, let's combine sweep and reflect modes:

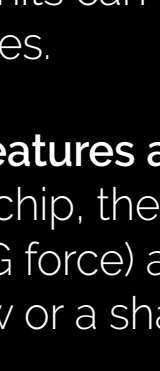
- Set the pedal to sweep mode and adjust the modulation rate with the CTRL knob. You can also set up a dynamic rate value using gate knob & footswitch (see above).
- Press & hold the footswitch and set the effect knob to **Reflect**.
- Now **sweep** and **reflect** modes are combined. The CTRL knob will apply to the currently active effect mode (**reflect**), and you can set up a different **gate + footswitch** parameter for the **reflect mode**.

Similarly, you can combine **tremolo** and **harmonic** modes, **optical** and **feedback** modes and explore other interesting combinations. To exit the multi-effect mode, simply adjust the effects selector knob to a different mode. All saved parameters, such as CTRL and footswitch + gate (dynamic effect) values will be lost.



TAILS

With TAILS switched ON, you will be able to smoothly turn the LIGHT Pedal off, while preserving the reverb's natural decay trails.



When switched OFF, the reverb trails will be cut as soon as the LIGHT Pedal is switched off.

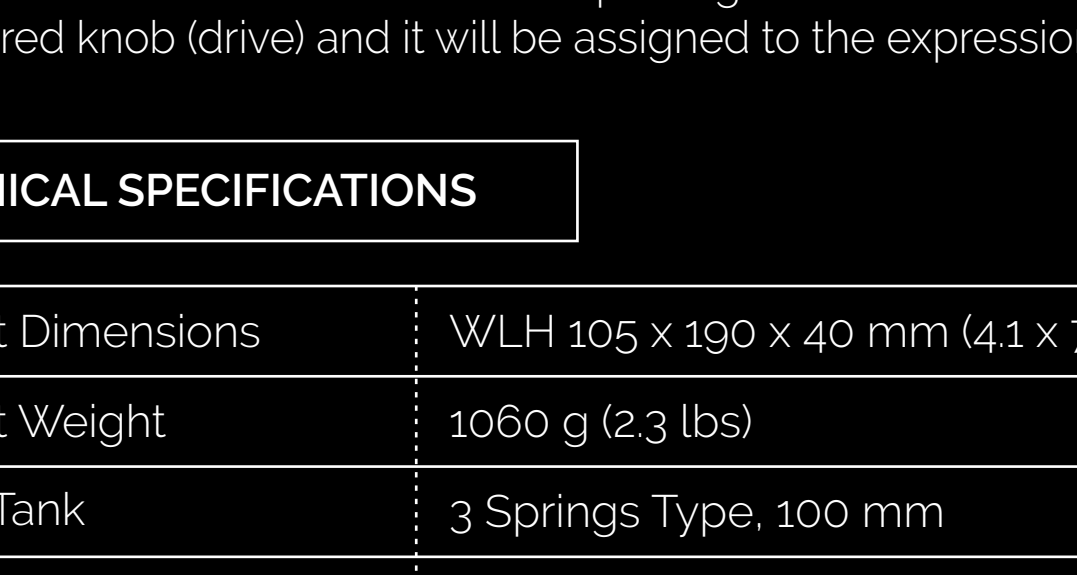
LATCH

When LATCH is ON the LIGHT Pedal's footswitch will act as a standard latching on/off footswitch.



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.



SHOCK SENSOR

As we all know, spring reverb units 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 detect sudden physical impact (measured as G force) and instantly shut off the wet signal 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 1/4" jack INPUT and OUTPUT.

The LIGHT Pedal also features an expression input for 1/4" TS and TRS jacks, and is compatible with all expression pedal types, as well as CV signal (active range 0 to +3.3V).

By default the expression input is assigned to the CTRL knob. You can assign the expression control to any one of the following knobs - **spring, optical, drive** or **gate**. For example, to assign the expression pedal to the drive knob, unplug the LIGHT Pedal's power supply, press & hold the LIGHT Pedal's footswitch and plug the power back in. A flashing light will indicate that the Pedal is in exp. assign mode. Now simply turn the desired knob (drive) and it will be assigned to the expression pedal.

TECHNICAL SPECIFICATIONS

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, 100 mm

Input Impedance: 1 MΩ

Max Input Level: +6.8 dBu

Output Impedance: 100 Ω

Max Output Level: +6.8 dBu

Peak Power Consumption: 4 W

Mean Power Consumption: 0.9 W

Power Requirements: 500 mA min, 9 V DC, center negative 2.1 x 5.5 mm plug