sound machines
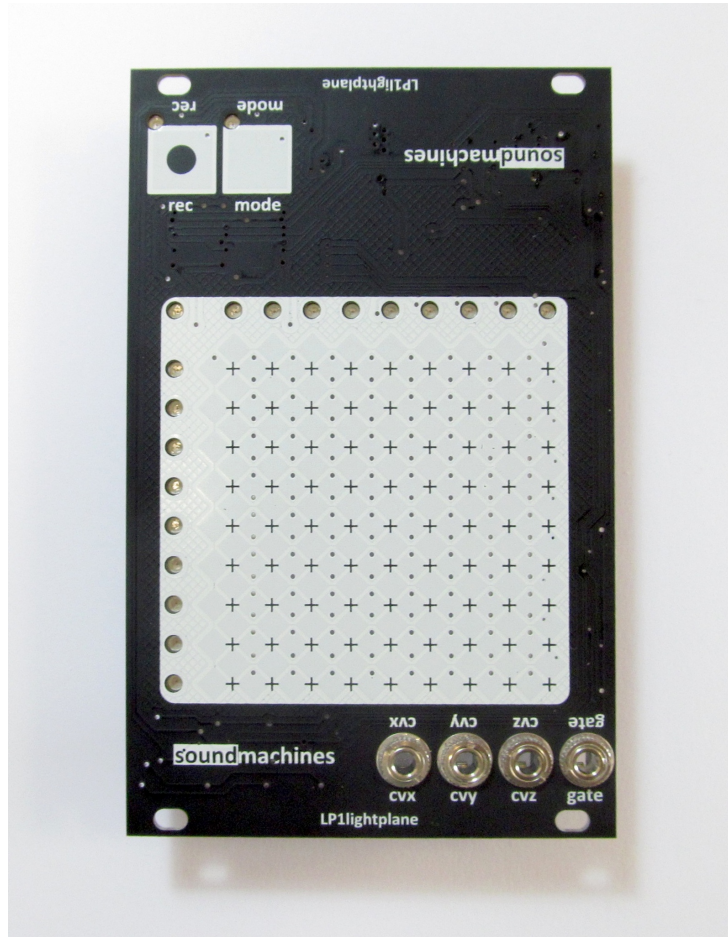

LP1lightplane User's Manual

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Introduction

The LP1lightplane is a capacitive surface that generates three-dimensional CVs plus a GATE signal along with finger movements, and "pressure" of your finger on its surface. It can also record those movements and loop them. It has different modes of working depending on the settings of the MODE button and the jumpers positions on the back of the module. The module can be mounted both ways. We thought that in a 3U skiff it could be good to have the jacks on the top side and the contrary in a standard vertical mounted modular case. It's up to you! We provided a jumper to be sure that when your finger goes 'up' and 'right', the voltages rise!

In XY high resolution mode you can record up to 4.5 seconds of 'movements' on the surface, including GATE output with a resolution of 15msec. The result is a nice and smooth variation in the output. In XYZ record mode the sampling time doubles but you actually record also the pressure axis (z).

The module can be setup to generate either 5V or 10V output voltage, by means of jumpers setting.

Care and Feeding

LP1lightstrip is an 16hp eurorack module designed to comply with the Doepfer® power standard.

GATE signal is **5V compliant**, either in GATE OUT and in External GATE mode (as an input). **ATTENTION: GATE as an input is protected for overvoltages but the LS1 may malfunction out of his nominal range. It is strongly advised to not exceed the rated voltage.**

Please use the supplied power cable. The red conductor on the cable is connected to -12V supply rail as the standard implies. Please look at the silkscreening near the power connector for the correct orientation (with the REC and MODE buttons UP, the orientation is the 'standard' one, -12V (red stripe on the cable) on the bottom of the connector.

Current rating: the module requires 210mA on the +12V rail when all the LEDs are lit. Very little current is drawn on the negative supply line (6/8mA).

Specifications

LP1lightplane is a CV generating module. This chapter will tell you, in details, how its multiple modes are triggered and configured and how you can use it in your environment.

Modes of operation:

The module could work in two **'quality modes'**: HIGH and STANDARD. The quality modes only impacts the rec and playback phases. To handle the memory of the microcontroller and to allow the user to choose between sample time optimization versus tri-axial recording, the user have to choose its mode. The default mode (the power-up mode) is HIGH quality.

In high quality the sampling time for the X and Y axis is 15ms. This ensures super smooth transitions when the playback is active. The drawback is the there is no memory left for the Z axis.

In standard quality the sampling time is 30ms BUT the recording is applied to the three axis.

In both modes the maximum recording lenght is about 4.5s

To enter STANDARD MODE, after the power up (i.e. no REC or HOLD mode active!) press the rec and mode button together until all the leds flashes!

To exit STANDARD MODE, getting back to HIGH QUALITY MODE, press briefly the two buttons together. The flash will signal the status change.

OPERATING MODES

The module has three different modes of operation: LIVE, HOLD ad REC:

LIVE Mode

LIVE mode is used when you want to have a direct relationship between your... finger and the modular. Both MODE and REC leds are off to signal this state. Each time your fingers touches the slider surface X-Y and pressure voltages are sent out the CV jacks and the GATE signal is also activated. The LEDs on the sides of the matrix pad will light up as the voltage output changes. The CV output will swing linearly between 0V (actually is a little more than that) and 5 or 10V depending on the range jumper setting. Some details about the Z-axis output: This output is linked to the pressure of the finger on the panel. As there are no real pressure sensors we derive the information based on the variance of the finger's position on the matrix so the information is more rough than the other axis but nonetheless absolutely usable. The firmware takes care of smoothing and interpolating the output. There is no indication of the Z-axis output voltage.

HOLD Mode

Without having your finger on the matrix pad, press the MODE capacitive buttton. The MODE LED will light as the HOLD mode is entered. Same as above but the CV value is held when you whitdraw your finger. Instant control surface for VCFs, VCAs and any other CV controllable stuff in your modular. Again, the Z axis, being connected to the pressure on the matrix, will 'diminish' as you take the finger out of the matrix. The faster you are to take the finger off, the higher the Z output will remain. Tap on the MODE again to back up to LIVE mode. In HOLD mode the LEDs on the sides of the matrix will light up as the voltages output changes. There is no indication of the Z-axis output voltage. In this mode, the GATE output will be ON all the time.

REC Mode

This mode is implementing a gesture/cv/gate recorder on the LP1. To enter the mode simply hold the REC button as long as you want to record your

movements. When you depress the button the LP1 will start looping what has been recorded. The LP1 will automatically start looping also if you exceed the maximum memory lenght (4.5s). LP1 will playback the X,Y axis and, depending on the quality mode and the rear G_I/O jumper, the Z axis and the GATE.The LED on the rec/mode button will blink fast during the recording and slower during the playback phase. If you operate again on the matrix pad <u>the output will be overridden</u> with you physical intervention but the 'timing' won't be lost. To stop the PLAY phase just tap on MODE mode button again. When you press again MODE, the playback will restart from the beginning. To exit REC mode tap hte REC button. During this mode the LEDs on the sides of the matrix pad will light up as the voltage outputs changes.

OPTIONS:

For each of those modes you can choose (via jumpers on the back) the CV range (0-5V or 0-10V), the orientation of the module (upside down anyone???? you possibly would like to choose where your jacks are!!!), the mode of RECORDING, internal or external (the GATE output in this case doubles as a START FROM FIRST SAMPLE trigger, permitting you to 'sync' with your modular sequencer or clocks).

See next pic for jumper location. The standard jumper settings are:

- Board (orientation) Jumper NOT inserted: bottom is where the jacks are
- Gate mode (G_I/O) Jumper NOT inserted: GATE is an OUTPUT
- Voltage select: Jumpers on the 5V side

GATE MODE

BOARD ORIENTATION

RED STRIPE (-12V)

soundmachines

Z-axis 5V or 10V

X-axis 5V or 10V

Y-axis 5V or 10V

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