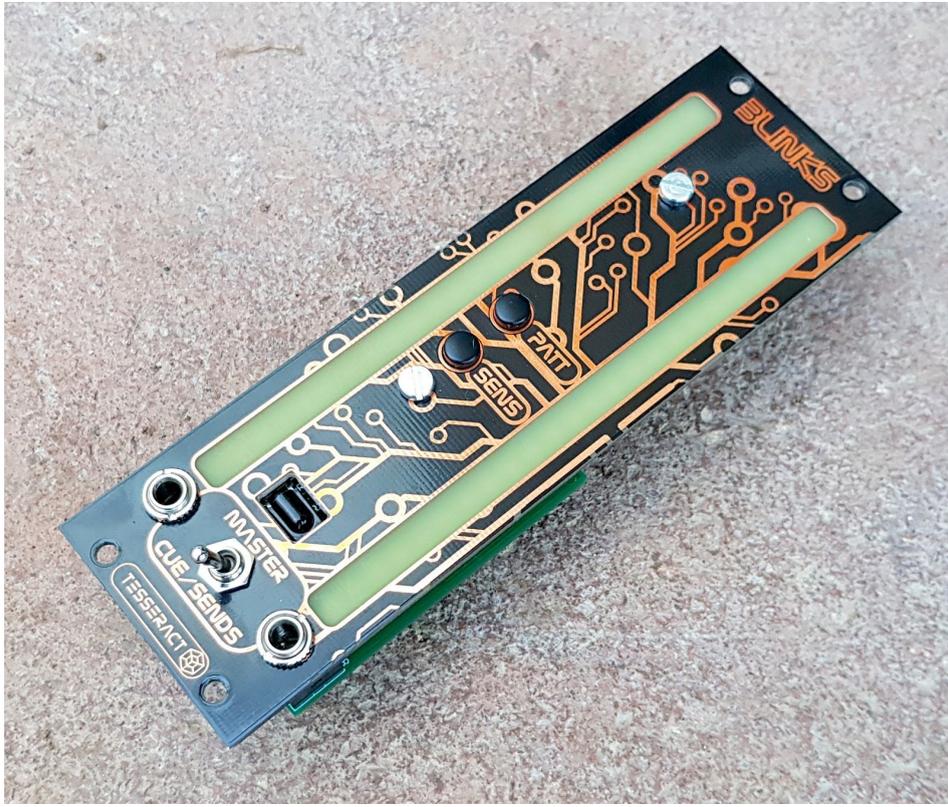


# TESSERACT MODULAR



## BLINKS

BLINKS is an 8HP Eurorack VU meter with 24 RGB leds per channel. It's very simple to use: it has 2 inputs, one for each led column, and 2 buttons with multiple functions. The easy way explanation of the functions:

PATT	->	change pattern
PATT long press	->	<a href="#">change color scheme</a>
SENS	->	adjust sensitivity
SENS long press	->	<a href="#">adjust brightness</a>

The module has a built-in 5V regulator, in case you don't have 5V in your Eurorack PSU. You can use JP1 jumper on the back side to select between the led board powered from the 5v rail or by the internal regulator (which is powered from the +12v rail).

<b>+5v:</b>	<b>30 mA</b> (on lowest brightness), <i>5v rail not necessary for operation</i>
<b>+12v:</b>	<b>4mA</b> (or ~40mA if 5v rail is not used)
<b>-12v:</b>	<b>4mA</b>

Up to 3 stereo signals can be connected to the [buffered input](#) using the rear headers.

Easy [DIY](#) with only a few components, the led board is already assembled.

**PATT** button changes the led pattern ( 6 patterns to choose ).

**SENS** button changes the audio input sensitivity, cycling in 7 steps.

#### **Color Scheme selection:**

Long press PATT button to enter the *color scheme selection* for the current pattern. Use both buttons to navigate through different color schemes, long press PATT again to save the settings. Long press SENS button during the *color scheme selection* to enter *custom color configuration*. Please note that the “bottom upward emission” pattern is not color configurable, long press of the PATT button when this pattern is active will enter *infrared learning mode*.

#### **Custom color configuration:**

In this mode, use both buttons to select the individual LED you wish to modify. Long press PATT button to change the color of the selected LED (6 colors to choose from). Long press SENS button to exit the *custom color configuration* and return to the *color scheme selection*.

#### **Brightness adjustment:**

Long press SENS button to enter the *brightness adjustment*. Use both buttons to modify the brightness in 8 steps. Long press SENS again to save the brightness settings, or long press PATT button to exit without saving. You'll probably prefer the lowest setting, not only because of the power consumption, but also because intensive brightness can be pretty annoying.

#### **Infrared learning mode:**

This module has an IR receiver, so it can be used with the remote control. Many TV remote controls will work, as well as card-sized Arduino remotes, but those for air conditioners probably won't.

To enter the learning mode, select “bottom upward emission” pattern and long press PATT button. Every time you press a button on your remote control, it will be assigned in this order:

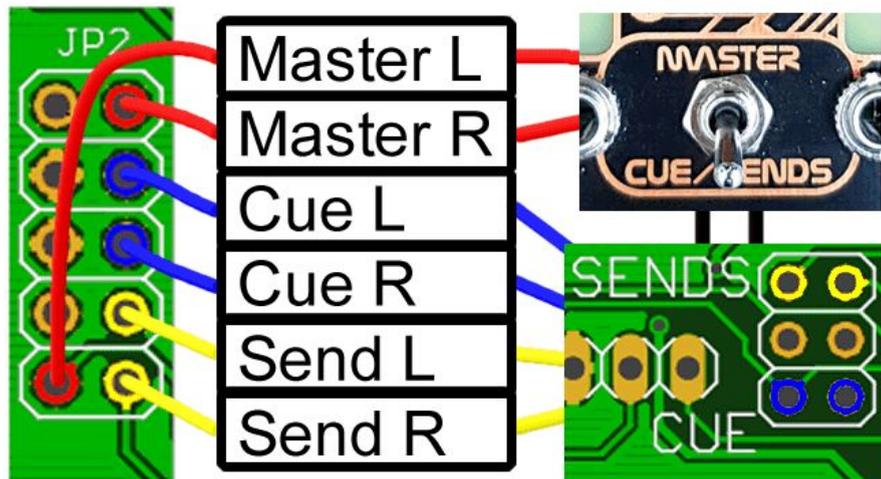
- PATT
- PATT long press
- SENS
- SENS long press

Every time a key on the remote control is pressed, six LEDs in the left column will light up in red. If there's no reaction after pressing a key on your remote, it most probably isn't compatible with the receiver.

#### **Buffered input & back connections:**

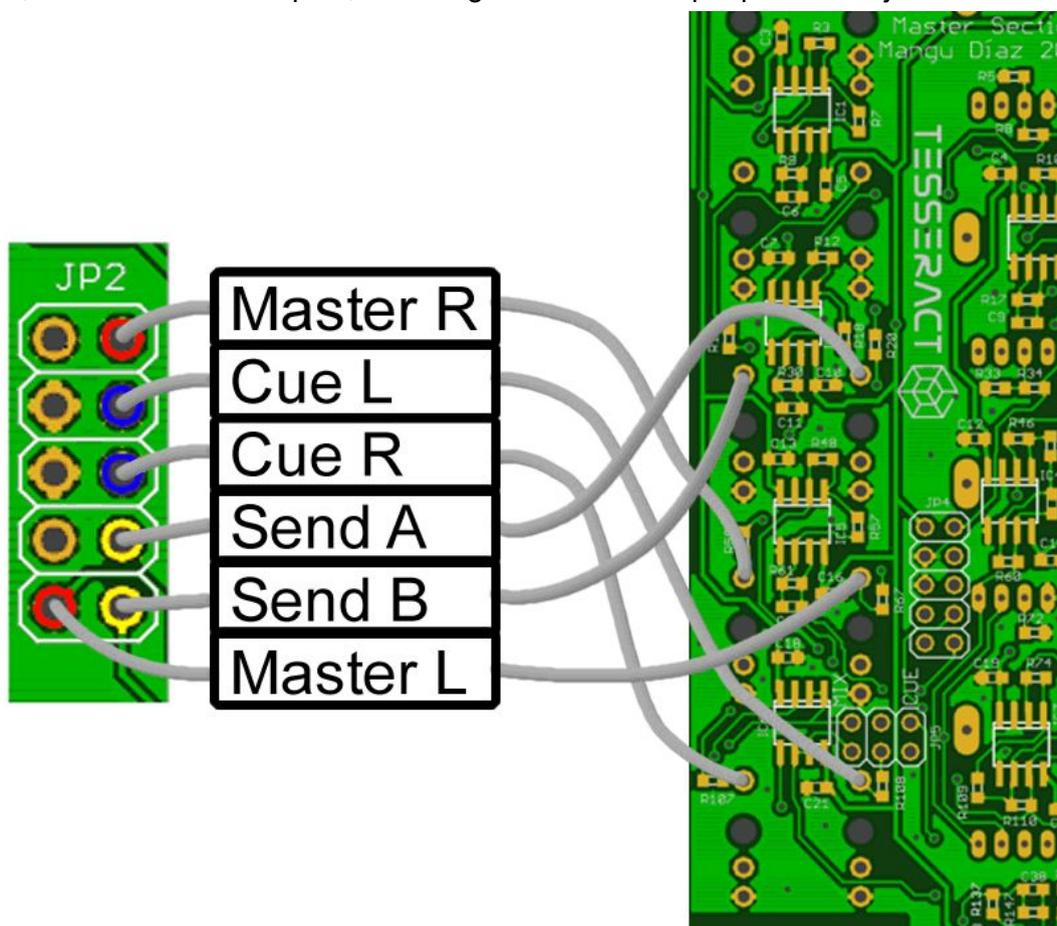
There are 2 headers **JP2 & JP3** on the back, up to 3 stereo signals can be connected to those in order to use the buffered input (front inputs are unbuffered btw), so you can (for example) have it pre-wired internally to your mixer output. Plugging a mini jack in the front input breaks the signal from the back connector, but this won't have any side effect in your mixer's out (like clicks or noise), because the normalization with the jacks

happens after the buffer, which protects the integrity of the signals connected to those headers. Both JP2 and JP3 have the same pin assignment:



The toggle switch selects the signal to be displayed (unless, as we said, there's something plugged in the front mini jacks). Signals plugged in the MASTER pins go directly to the toggle switch, signals plugged in CUE and SEND pins go to JP4, there, 2 jumpers selects which one will be directed to the toggle switch.

If you're a skilled DIY tinkerer, with a little effort you can connect the buffered header to your TexMix Master Section and have a visual representation of the signals on your master, monitor or send outputs, soldering wires to the output pins of the jacks:



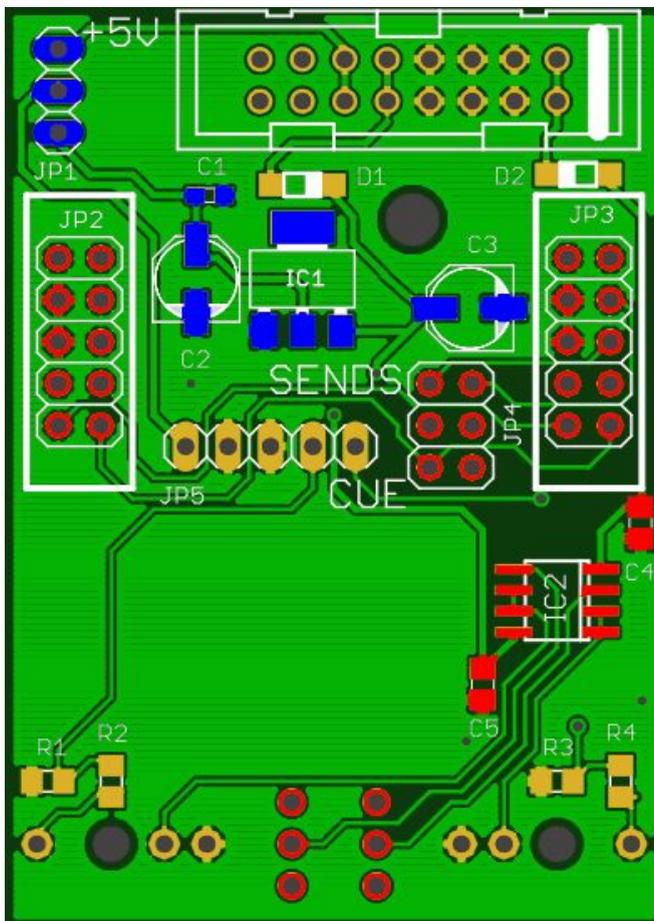
Other Solutions are possible without soldering, using [female jumper wire](#), for example, taking the signal from those pins of Master Section's JP5 will monitor the same mix you have in headphones, but unaffected by the phone level pot neither the master volume pot.



**BUILD IT!**

BOM:

[https://docs.google.com/spreadsheets/d/1IScy6Qg8yuWhdjIZJCYH8o6zvzrNjcChiyA-ixy6\\_g4/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1IScy6Qg8yuWhdjIZJCYH8o6zvzrNjcChiyA-ixy6_g4/edit?usp=sharing)

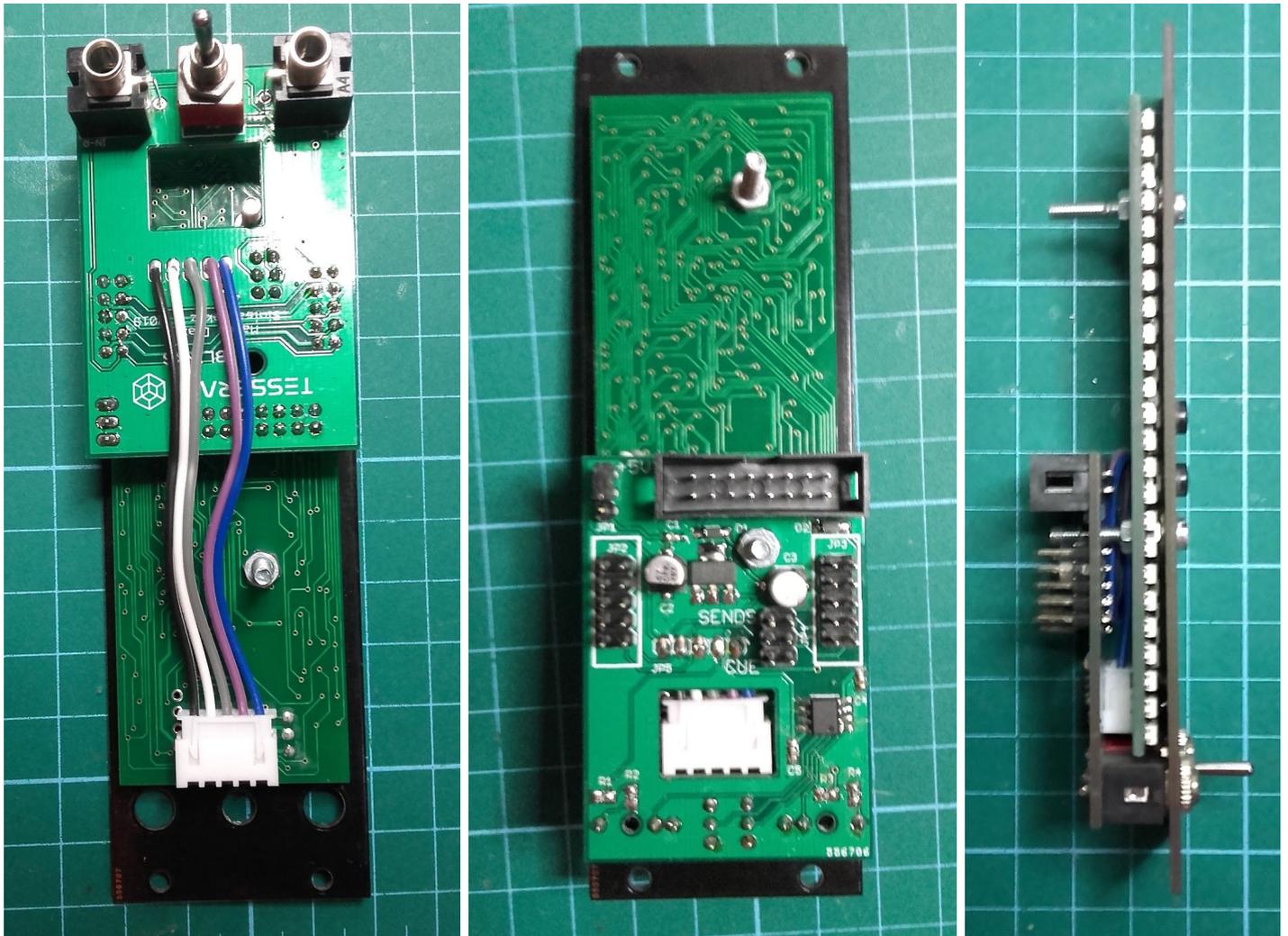


**BLUE** If you have +5v rail in your Eurorack PSU and you're positive you'll never use this module in a case without +5v rail, you can omit these parts, soldering a jumper from the center pin of JP1 to the upper one.

**RED** If you don't need the buffered back connection and you plan to use this module via front input jacks only, you can omit these parts.

Resistor pairs R1/R2 and R3/R4 form two voltage dividers, one for each input, to reduce Eurorack signals (usually  $\pm 5V$  or  $10V_{pp}$ ) and adjust to the LED board sensitivity (audio line input, usually  $\pm 1-2V$  or  $2-4V_{pp}$ ). Some basic values you can use would be  $15k$  (R1&R3) and  $75k$  (R2&R4): it works just fine with our setup, but feel free to experiment with other values (in 0805 SMD).

JP5 is where the cables coming the LED board must be soldered to, but everything will fit better if soldered to the TOP side of the pcb (where the Tesseract's logo is)



The LED board needs some separation between itself and the front panel, if not, there won't be room for the buttons to work properly, also, you'll need to fill the inside of the button caps (with thermal glue, pressed paper or whatever).

Put the two M3 screws in the panel and place a washer and a nut just behind it, place the button caps and the LED board and secure it with other pair of nuts. Now, test if the buttons "click" fine, if not, go back place another pair of washers behind the panel to make enough room. Finally, place the Blinks pcb. Screw the mini jack & toggle switch nuts and the M3 nut to secure the Blinks pcb.

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