

— ph —

## ANALOG BASS DRUM

Manual v1.0

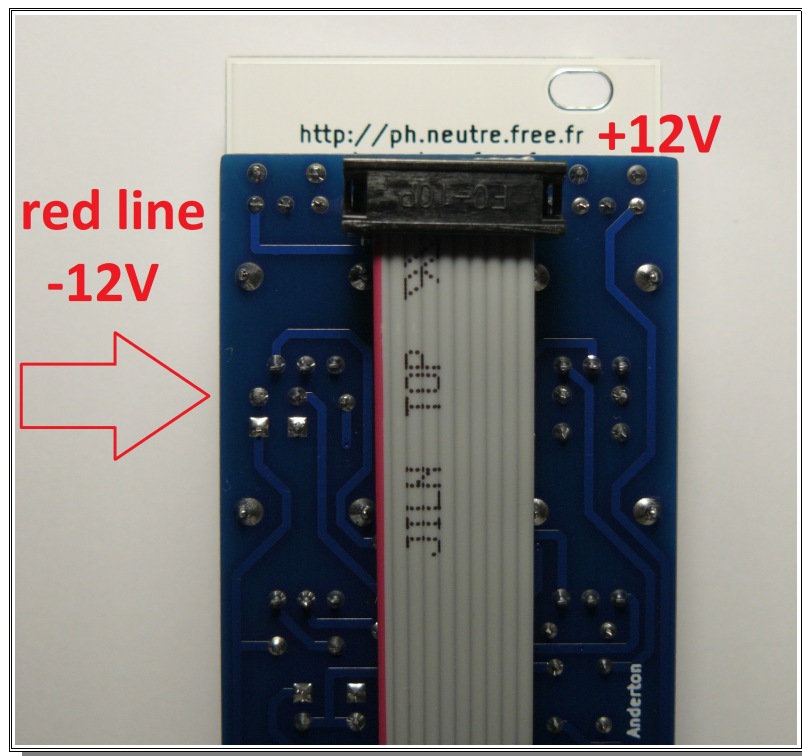
Inspired by Craig ANDERTON's (1983) diagram of Hip Bass Drum, this reinterpreted analog kick for the eurorack format delivers powerful sound and many possibility with its many controls. The idea of the original schematic was to get as close as possible to an acoustic drum kick. I chose to widen even more the sound palette to get kicks typed 808, or more felted, rounder etc ... here is the Analog Bass Drum (ABD).

**It is recommended to lower the output volume before any connection ;-)**

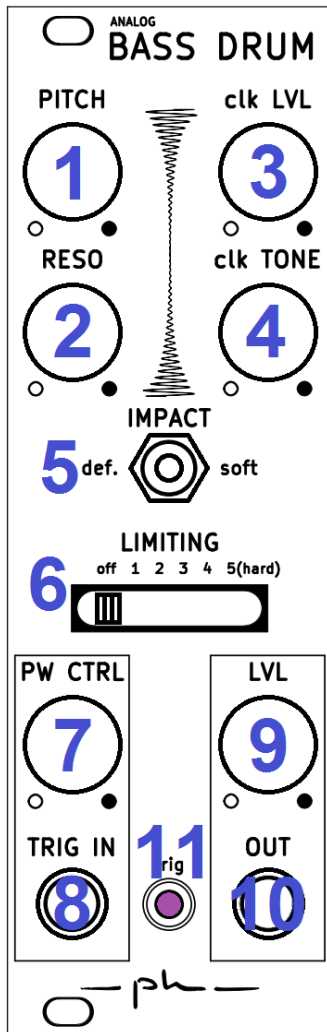
### Connecting the ribbon cable

! Be careful to always respect the connection direction of the tablecloth: by convention, the colored part (usually red / pink) of the ribbon represent **-12V** !

Note : on all PCB — ph —, the -12V « red line » is screen printed near the power connector.



## Presentation



- 1 : Pitch (Tune)
- 2 : Resonance
- 3 : Click level
- 4 : Click tone
- 5 : Impact (default or soft)
- 6 : Hard limiting 6 positions
- 7 : Pulse Width control of trig
- 8 : Jack IN TRIG (+5V ~ +12v)
- 9 : Attenuator OUT
- 10 : Jack OUT
- 11 : Indicator Purple LED TRIG

## Detailed description

- 1) Tuning of the ABD. The basic oscillator is a SINE. You can adjust pitch from low to high (this command is completed by a circuit that changes his resonance frequency dynamically over time, bringing a complex attack sound).
- 2) The resonance that completes the pitch has a great influence on the sound of the ABD. It brings in parallel a decay more or less long. It gives very good results in minimal settings for dry sounds, it must push a little to bring more bass. This setting is also very interesting for Toms for example ... **Use with caution in the last quarter!**
- 3) The click, very important in the sound of the ABD, brings harmonics which give the sensation of a very marked attack. It can be mutated (level to zero) or on the contrary very present. Ideal for very punchy kick.
- 4) The second setting concerning the click offers a filter playing on its tone, from deaf to brilliant .
- 5) Impact offers the default setting (def) where the sounds will be relatively punchy, more "punchy" or the setting (soft), with a muted sound less percussive. Ideal for analogue bass drums. Note that function 6) "limiting" is less drastic when "soft" is selected.

- 6) Perhaps the most interesting function of this module is hard clipping. Acting on the Decay, it will be light on 1 and the opposite, very sharp on 5. Muted Off. The RESO / PW / LIMITING combinations must be tested to understand the many possibilities offered. The effect can be subtle or radical.
- 7) PW CTRL changes the total width of the trig pulse. In low settings, the narrower pulse width will give the impression of a softer sound (a lighter strike from the "bass drum"). Conversely, increasing the adjustment, you will get a large pulse width, bringing a heavier sound, a stronger strike.  
**Be careful, however, the PW set to the maximum causes unpleasant saturation\***
- 8) Input (jack 3,5mm) of the Trig signal (de +5V à +12V). You connected your impulsion source.
- 9) Output level. 9) The ABD gives all its power when this level is high (to make tests gradually in advance)
- 10) Output (jack 3,5mm).
- 11) This LED indicates the presence of a pulse in 8)

### **Example of use**

For a first approach :

- not set the pitch too low,
- keep the resonance low enough,
- gradually add "click"
- and a mean value for the pulse width (PW) ...

**Feel free to experiment, the variants being very numerous !**

## **Characteristics**

Size 8hp (4 cm), epoxy white panel 1,6 mm.

Deep : 26mm with connector.

PCB in epoxy FR4 dual layer, 1,6 mm. Surface finish HASL.

Ribbon cable, M3 and nylon nuts inc.

Consumption : ~5 mA (+12V) / ~4 mA (-12V)

Components tested and assembled by hand, in Brittany, France.

## **Warnings (reminder)**

The mix between the reso & the PW pushed to the extreme can sometimes give rise to saturation. If the LED remains fixed, lower PW CTRL. Do not neglect the output attenuator...

*I can not be held responsible for any degradation of equipment (speakers, headphones ...) or hearing loss ;-)*

\*Observations due to the design of this circuit ...

- When the click level exceeds half, the tone setting becomes less audible ... solution = lower the click
- When the pitch is increased, the resonance seems to increase as well, and the decay gets longer ... solution = lower the reso

*thank you for your trust  
Feel free to give me your opinion, criticism or wishes ...  
Other modules are coming*

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