

1. Introduction

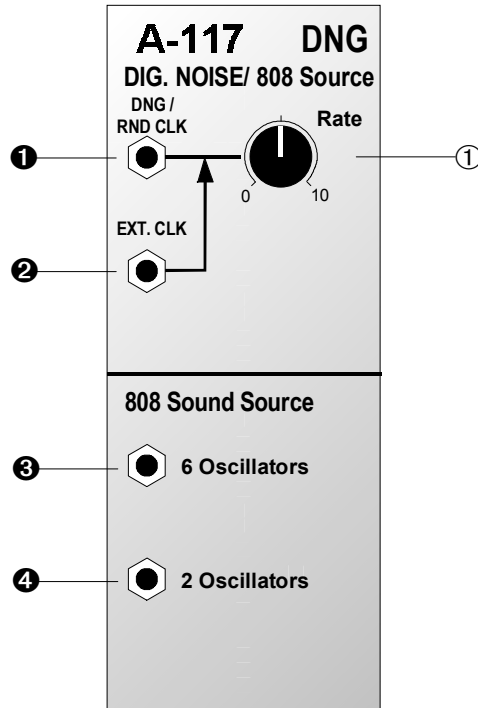
Module **A-117 (DNG)** is a combination module, including a **digital noise generator** and an **808 source**.

The digital noise generator uses random sequences of square waves, (18-band, with multiple slewed feedback loops), whose rate can go from **random clicks** to **pure noise**. The colour of the noise is very different from the analog noise produced by the A-118.

In addition to a manual setting, the rate can be controlled by an external clock - eg. VCO, LFO or MIDI clock).

The 808 Source aims to re-create the sort of **multi-oscillator array** that was used in **Roland's TR-808** and **606** drum machines as the basis of the sound of the hi-hat, cymbals and cowbell. The **cowbell mix** uses two oscillators, and the **cymbals mix** six.

2. DNG / 808 - Overview



Controls:

- ① **Rate :** Pulse rate control for random clock / noise output ①

In / Outputs:

- ① **DNG / RND CLK :** Output for random clock / digital noise
- ② **EXT. CLK :** Input for external clock signal
- ③ **6 Osc. :** Output for 808 source (6 oscillators)
- ④ **2 Osc. :** Output for 808 source (2 oscillators)

3. Controls

① Rate

This is used to adjust the pulse rate of the random clocks generated. At low pulse rates, individual pulses can be heard (see Fig.1, top), but with higher pulse rates (see Fig.1, bottom) the sound merges into **noise**.

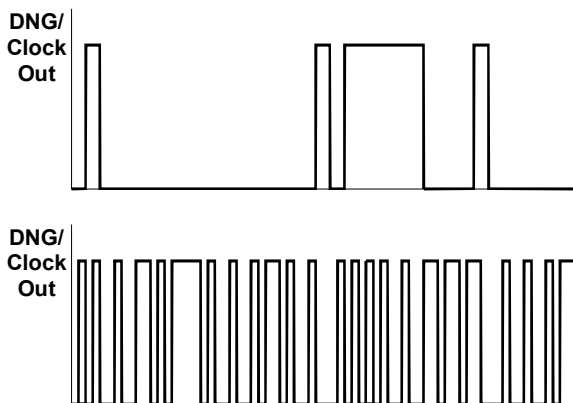


Fig. 1: A-117 output signals at different pulse rates

4. In / Outputs

① DNG / RND CLK

Output ① produces random clock pulses or digital noise, depending on the pulse rate set.

② EXT. CLK

Input ② is a **normalised** socket, so that the rate knob controls pulse rate, unless a signal is patched into this socket.

This external clock can be provided eg., by a square wave from a VCO or LFO, or from a MIDI clock, etc.. In this case, control ① has no effect. Pulse rate is then simply decided by the frequency of the external clock.

③ 6 Oscillators

Output ③ delivers a six-oscillator mix, like the raw material of the TR-808's cymbal sound.

④ 2 Oscillators

Output ④ delivers a two-oscillator mix, like the raw material of the cowbell sound on the Roland TR-808.

5. User examples

Module A-117 is an inexhaustible source of scraping, lip-smacking, bell or other untuned percussion sounds, so the following examples should be taken just as starting points for further experimentation.

Random clock pulses

With low pulse rate settings, the A-117's output ① is a source of randomly sequenced clicks or clocks. You can use these for modulating a variety of things - for instance the final ADSR in a patch, to produce sudden sharp peaks in the filter cut-off point.

Alternatively, you can use the clock pulses to **control the voltage controlled switches** A-150 and A-151, or the **clock divider / sequencer** A-160/161. Relevant patches can be found in the manual sections for the respective modules.

The patch in Fig. 2 shows another application, where the clock pulses are used with a filter for **sound creation**.

It uses the ability of a filter to 'ring': if you patch a pulse with a steep rising edge into a filter, it can set the filter into a brief burst of resonance. Depending on the filter

type, different settings of the cut-off point and resonance amount can lengthen a click into bell-like sounds.

For example, if you use the 12dB band pass filter output on the A-121, with the cut-off set at around 5, and resonance set just below self-oscillation, you can create effective **dripping sounds**. A slow LFO (c. 5 Hz) modulating the filter cut-off point, makes each drip sound different.

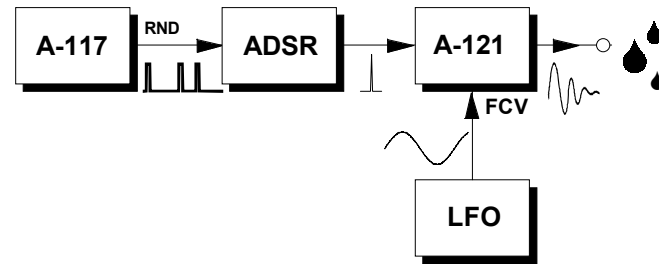


Fig. 2: random production of dripping sounds

Use the filter's resonance control to adjust the nature of the sound, from a drier, cracking / clicking type of sound (with little resonance) to a wetter, tinkly / bell-like sound (with the resonance set high, just below self-oscillation).

Change the band pass for a high pass filter, put the cut-off to high and the resonance to minimum, and summon up a hailstorm.



Experiment with different filter kinds, and settings for cut-off and resonance. You'll find all sorts of combinations of settings and filter types that produce well usable percussion sounds.

The A-117 as noise generator

At higher pulse rates, **digital noise** is available at output ①. For example, you can add this unfiltered to other sounds. In Fig. 3, a patch for an 808-like bass drum sound uses a VCA, two ADSRs (one with a very short envelope) and a band-pass filter, to create a burst of bass energy. This standard bass drum sound benefits from filter ringing - see above.



Again, this basic patch will work well with other filter types, and cut-off and resonance settings, to produce different sounds like tom and snare drums.

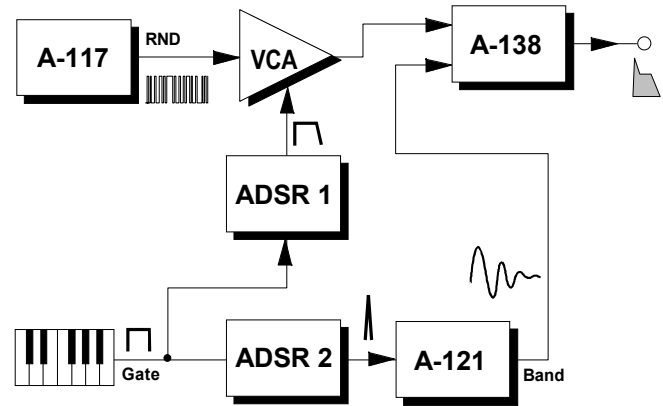


Fig. 3: Producing bass drum sounds

"Playable" noise

If you patch a VCO's square wave output into the external clock input, the frequency of the digital noise follows the pitch of the VCO, to produce a sort of pitched noise. Best for this is the High End VCO A-111, which has a greater usable frequency range than the standard VCO A-110.

"Octave noise"

Patch the digital noise into an A-115 **Audio Divider** and create **extra sub-octave bands** in the character of the noise.



The A-117's digital noise is an excellent sound source for the synthesis element in the A-129 vocoder.

Producing percussion sounds á la TR-808

To produce a sound like the TR-808's **cowbell**, use output ④ (2 oscillators). Fig. 4 shows the relevant patch.

With that same patch, you can also produce **hi-hat** and **cymbal** sounds, using output ⑥ (6 oscillators). In this case, the filter cut-off point needs to be about 10 kHz.



Instead of the band pass filter, you can use a low pass filter for the cowbell sound, and a high pass filter will work for hi-hat and cymbal sounds.

Try other settings for filter cut-off and resonance, and other types of filter, to produce all sorts of different percussive sounds.

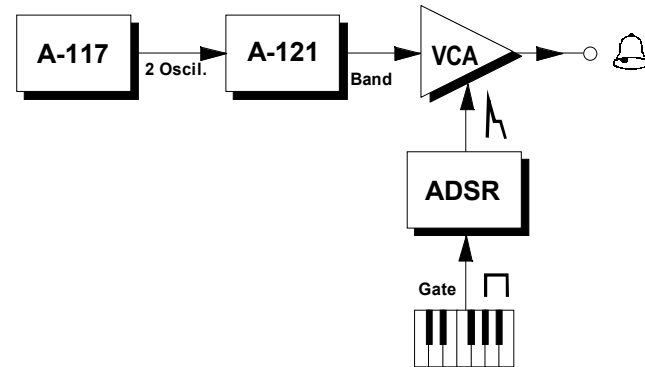


Fig. 4: producing a TR-808 cowbell sound.

Use **full range** digital noise as **source material** for **noises** and **percussive sound effects**, patching it into an A-128 fixed **filter bank** and VCA, which in turn is controlled by an ADSR. Experiment with all sorts of different combinations of filter bank settings.

Another thought: the 6 oscillator signal at output ⑥ of the A-117 works very well as an excellent **sound source** for the synthesis section of the A-129 **vocoder (A-129/2)**.

6. Patch-Sheet

The following diagrams of the module can help you recall your own **Patches**. They're designed so that a complete 19" rack of modules will fit onto an A4 sheet of paper.

Photocopy this page, and cut out the pictures of this and your other modules. You can then stick them onto another piece of paper, and create a diagram of your own system.

Make multiple copies of your composite diagram, and use them for remembering good patches and set-ups.



- Draw in patchleads with colored pens.
- Draw or write control settings in the little white circles.

