

# SD909



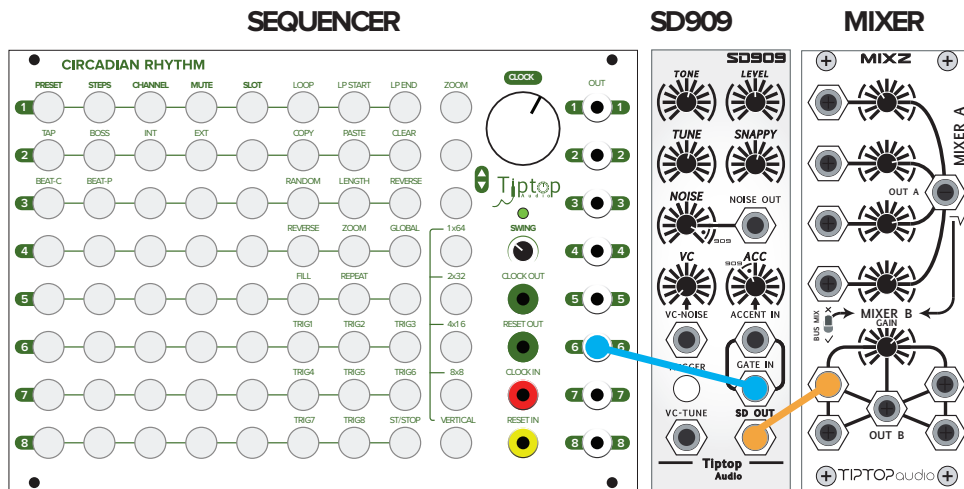
# User Manual

## Introduction.

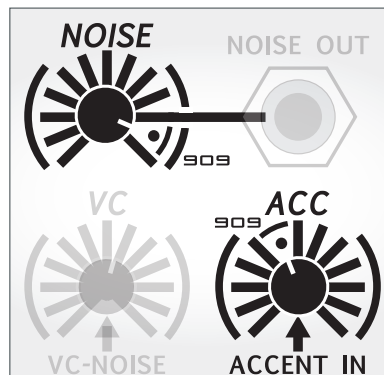
The SD909 module is an exact recreation of the original TR-909 snare drum analog sound generators adapted for modular synthesizer use. The front panel contains all of the controls found on the original TR-909 drum machine, in addition we have added more controls to further enhance the sound palette of this great analog circuit. The SD909 also includes the TR-909 white noise generator as an extra sound source in the system, and unlike the TR-909, the noise source in the SD909 is voltage controlled.

## Let's get started.

Plug the SD OUT to a mixer, set the knobs position similar to the drawing below and hit the Trigger Button.



To set the exact sound of the TR909 the sounds from the internal oscillators and noise generator need to be balanced correctly. The SD909 NOISE and ACCENT controls are the main ones controlling that. The front panel has regions marked with a dot and labeled 909, which are the original settings. Since this is an analog circuit and tolerance varies we marked regions instead of an exact spot. Go ahead and turn NOISE all the way up and slowly bring it back toward the dot, as the gain starts to increase that is where the control needs to be. Set the accent where the dot is. Now set the SNAPPY to balance the noise vs the oscillators sound.



## **Tone Tune and Snappy explained:**

These three controls are original from the TR-909. Tone and Snappy both control the noise section of the snare drum. Tone sets the length of the noise and Snappy sets the gain of the noise. The Snappy in the SD909 can go higher than the one in the TR-909, so if you are after an exact 909 sound then watch the levels and balance so it does not override the VCOs 'kick' sound.

Tune controls the internal VCOs pitch, and a CV input is provided for even more experiments.

## **The TR909 noise explained:**

Inside the SD909 is the original binary noise generator of the TR-909. In the TR-909 this noise generator was fixed, but in the SD909 we added CV and a knob which let us control the clocking frequency of the noise. The noise feeds into the snare drum sound but is also available in its pure unfiltered form at the NOISE OUT jack. Coupled with envelope generators, filters and VCAs you can shape new drum sounds using the NOISE as the source.

When lowering the NOISE frequency down to modify the SD909 snare drum the sound will become more and more metallic, and the clocking noise will gradually appear, this is not a defect, but the nature of this circuit.

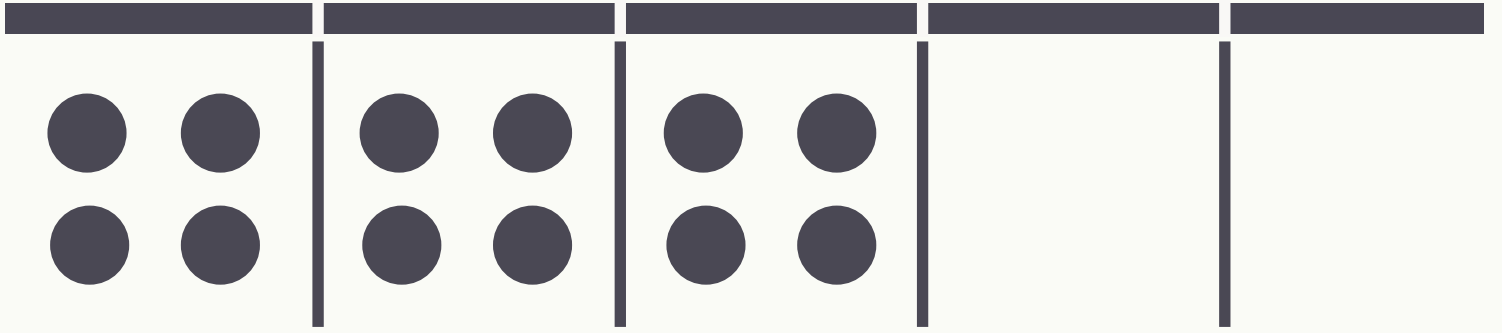
## **Accent Explained:**

The accent input can be driven by either a gate/trigger or CV signal.

When the accent input is not in use, the incoming gate input is routed (normalized) to both the accent input and the gate input.

Connecting a gate or CV signal into the accent input will break the internal routing mentioned above and will allow for independent control over accent regardless of the incoming gate signal. In this case as long as there is no accent signal present, the drum sound will be set to the internally set minimum accent level, and once the accent input receives a gate or CV signal, the drum sound will get louder in proportion to the accent level set by the accent knob. In short: the higher the knob setting, the larger the difference will be in gain levels between the accented notes and the un-accented notes. Using CV allows for even greater variations. As mentioned earlier, please note that in the 909 snare the accent affects the balance between the noise and 'kick' sounds that make up the snare drum.

909



TIPTOPaudio.com