

CP909



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CP909

Introduction.

The CP909 is Roland's TR-909 analog clap sound generator adapted for modular synthesizer use. The front panel contains all of the controls found on the original TR-909 drum machine, allowing you full control over the sound's volume levels to mix with other drums, and accent levels. In addition to those original controls we have also added the unique TRASH knob, further enhancing this circuit.

About the Making of the CP909.

The CP909 is a one-to-one clone of the original circuit found in Roland's TR-909 drum machine. During the design phase, we created additional features only when implementation would not compromise the original signature sound, or add excessive costs. Cloning a circuit that was designed and produced in the 80's was not an easy task. A variety of obstacles including availability of the original parts, the modern SMT manufacturing process, the differences in +/-12V Eurorack power versus the +/-15V of the original 909, and far many more were addressed in the creation of this module. To learn more about the process of remaking the sound generators in this series please refer to the BD808 user guide.

Let's get started.

To start using the CP909, just plug a gate signal into the GATE IN, plug the CLAP OUT to your sound system, set the LEVEL half way and TRASH to max, pointing at the direction of the 909 dot.

Dynamics and Gain:

Accent and Levels:

Dynamic Accent and Level control of any drum sound in the mix is a big part of making a beat sound right. Dynamic Accent provides emphasis on a particular note through loudness. In analog circuits like the CP909, the accent pulse physically "hits" the internal envelope circuit harder and provides not only a louder sound but also slightly more attack (much like if you were to hit a real drum harder or softer with a drum stick.)

While the original 909 has one global accent knob for setting accents levels for all of its sounds, the CP909 (and all other drum modules in this series) offers an independent accent level control. This feature adds to a clear work flow than what was possible with the original machine.

Accent Explained:

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

While the accent input is not in use, the incoming gate input is routed (normalized) to both the accent input and the gate input. This serves for two purposes:

1. To allow you to reach the hottest drum sound possible even when there is no accent input signal connected.
2. It makes the ACCENT knob act as a fine control of the output gain level. This is very useful in situations where the level knob range is too coarse for setting precise levels in a mix with other drum sounds.

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 minimum accent level set internally, and once the accent input gets hit by 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.

TRASH Explained.

The CP909 is based around a quasi-random logic-based noise generator and the TRASH knob controls the speed of this generator. When set at the max position (fully CW), pointing at the 909 dot, the generator is set at the original speed of the TR-909 and the typical clap sound can be heard. The TRASH knob gives you the option to lower this clock down, “trashing” the noise source which adds greatly to the spectrum of sounds that can be generated with this circuit.

Please note that as the clock speed is decreased, the volume increases; this is due to the nature of a logic-based noise generator, where the average of pulses is the source of which the noise sound is made from.

Trimmer Setting Explained.

The trimmer located at the center-right of the PCB is used to balance between the clap sound and the clap reverb sound. The CP909 is shipped with this trimmer set according to the procedure found in the original TR-909 service manuals. However, if you wish to experiment with this, please use a small flat head screwdriver and gently rotate the trimmer while listening to the changes in the tone.

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