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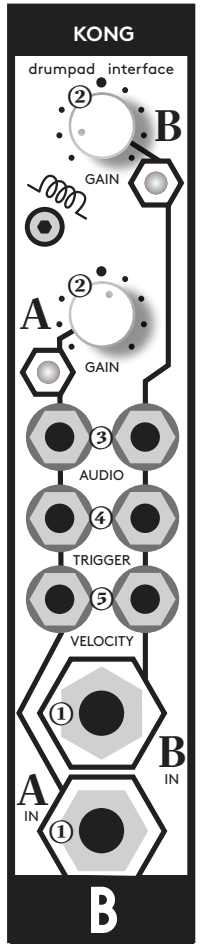
DRUMPAD INTERFACE



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Kong

Kong is a dual drum pad interface that amplifies the drum pad signal and converts it to trigger and velocity CV signals. The Gain knob helps to amplify signal from any drum pad and serves as a sensitivity setting for the trigger and velocity, too. Each time the Kong detects a hit on the drum pad it outputs a trigger pulse and generates static CV on the velocity output corresponding to the intensity of the hit. The whole architecture is fully analog and the Velocity CV signal is generated by a sample and hold circuit with extremely low drift making it perfect for controlling crazy patches. The Audio outputs provide amplified signals after the gain stage which enables Kong to be used as a dual modular pre-amp specifically meant for piezo pickups, but flexible enough to work with tons of other gear

❶ Input

The drum pad input jack is meant to be connected to the output of the pad. Typically the drum pads have the mono TR 6.3mm/1/4 " jack outputs. If it has this typical output it will very likely be compatible with the Kong. See compatibility chapter for more details.

❷ Gain

The first processing stage is the Gain stage where the signal from the input comes first. The variable Gain is set by the Gain knob. The maximum gain is 20x/26 dB with exponential curve on the knob.

❸ Audio

The signal after the Gain stage is output by the audio jack and is not inverted. Therefore Kong can be also used to amplify any piezo sensor or any line-level equipment to the modular level. There is a high input impedance buffer stage before the Gain stage therefore the impedance is high enough that it can potentially also amplify signals from electric guitar chain to the modular level, but the gain might not be high enough for guitar level. The audio output can also be used for other signal processing such as generating dynamic envelopes via envelope followers etc.

❹ Trigger

The signal after the Gain stage is further processed and analyzed by analog circuitry. The Trigger signal is generated each time the input signal shows signs of fast rising signal such as dynamic hit on the drum pad. The trigger output is also indicated by the LED close to the Gain knob. The Gain knob has to be adjusted accordingly to set the sensitivity for the Trigger and Velocity signal. The Trigger signal is standard 0-5V pulse >1ms.

❺ Velocity

A new voltage corresponding to the velocity of the incoming signal is generated at the Velocity output each time the Trigger signal is sent. The Velocity voltage is generated by high-specs sample & hold circuit and the output drift is extremely low. This means this voltage is very stable and can be used to reconfigure your whole patch. The sensitivity of the Velocity output is set by the Gain knob. Often when signal is amplified too much (Gain is too high) the Velocity output becomes less sensitive to dynamics changes.
Typically you would use this voltage to control a VCA thru which a drum sound is being sent to change its loudness with the dynamics. However this voltage can be used to control any parameter in a modular synth - pitch, filter cutoff, downsampling, delay time - anything with a CV input! The voltage range of the Velocity output is 0-10V.
Note: the trigger signal is sent right in the moment when the Velocity voltage becomes stable to avoid clicks and artefacts due to changing Velocity voltage.

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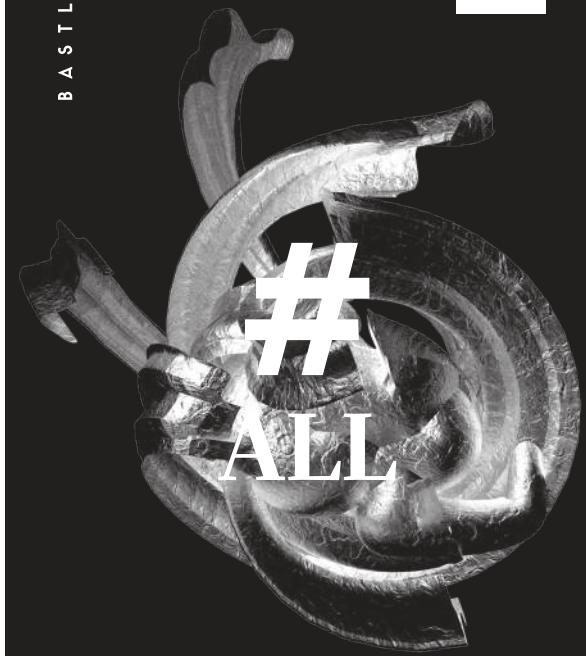

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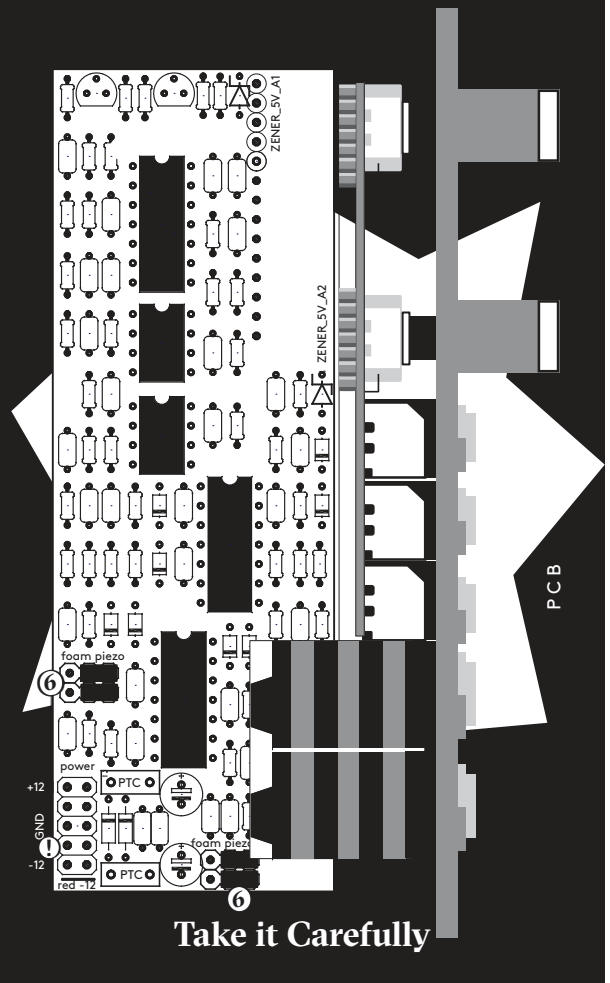

Take it Carefully

❻ Jumpers - piezo vs. foam

Most drum pads are based on piezo sensors, however some are based on conductive foam. These were tested and they work even with the jumpers configured in the Piezo position, but the foam position of the jumpers is a dedicated option. Also sometimes DIY drum pads can be created by using conductive foam and pieces of metal (just Google: DIY drum pads) and therefore special conditioning circuitry at the input is required. This conditioning can be adjusted by setting both jumpers into the foam position for each channel A or B.

Compatibility

The Kong accepts virtually any type of analog drum pad signal or any type of audio signal from piezo sensor. It is designed to analyse analog signal of a soft surface being hit by drum stick. With these signals it will respond the best. If your drum pad claims it can be used with standard drum pad interfaces and sound units it should also work with the Kong. Every simple analog drum pad outputs signals of different velocities and from any type of pad the data about velocity could be obtained. However it very much depends of physical shape and construction of such a pad to get the most resolution on the velocity scale. Therefore not only adjusting the Gain knob will help to achieve the best resolution. Also adjusting the pads physically could make a difference (think of adding felt pillows etc.).

features

- 2 independent channels
- fully analog core
- gain knob per channel
- audio output after the gain stage
- trigger output with LED indication
- velocity CV output
- low drift sample & hold for velocity

technical details

- 5HP width
- PTC fuse and diode protected 10pin power connector
- 55mm deep (with power cable connected)
- current consumption: +12V: <50mA, -12V: <60mA

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Connecting module to your system

Before connecting the ribbon cable to this module disconnect your system from power !

Double check the polarity of the ribbon cable and that it is not shifted in any direction. the red cable should match the -12V rail both on the module and on the bus board !

please make sure of the following

- you have a standard pinout eurorack bus board
- you have +12V and -12V rails on that bus board
- the power rails are not overloaded by current

Although we put protection circuits in the device, we do not take any responsibility for damages caused by wrong power supply connection.
After you connected everything, double-checked it and closed your system, so no power lines can be touched by hand, turn on your system and test the module.