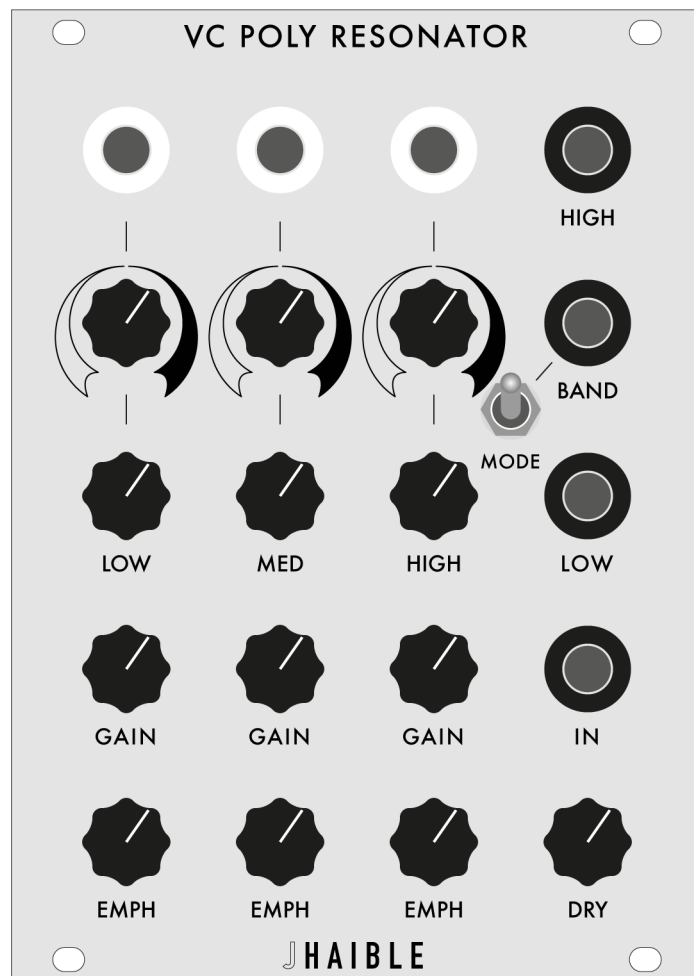


JHAIBLE

VC POLY RESONATOR

FOR EURORACK



USER MANUAL

V 1.0

RANDOM*SOURCE

VC POLY RESONATOR

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VC POLY RESONATOR

Installation

Always turn the eurorack case off and unplug the power cord before plugging or unplugging any eurorack power cable. Do not touch any electrical terminals when attaching any eurorack power (bus board) cables.

The Haible Resonator is an electronic music module requiring 50mA of +12VDC and 50 mA of -12VDC regulated voltages and an appropriate power connector to operate. It must be properly installed into a eurorack format modular synthesizer system case.

POWER YOUR CASE OFF before installing the module. Please use the power cable provided to connect the small end of the power cable to the module: RED STRIPE to “-12V”, as indicated on the back of the module. Carefully install and secure the module in your case. Power on and your module should be ready to go :-)

Please beware: Powering the module on anything more (or less) than +/-12V is not recommended and may damage the module. Feeding any of the inputs (or outputs) with voltages outside a +/-12V range may damage the module. This type of damage is not covered under warranty.

Overview

The Haible VC Resonator is an evolution of Jürgen Haible's Resonator which was inspired by the Polymoog Resonator. As Jürgen stated: *“The Polymoog, an early polyphonic synthesizer, featured a 3-band “Resonator” section that allows Formant-Filtering in addition to its dynamic Filters. Such a Resonator is a very useful feature for analogue synthesizers”*. Each of the three filter channels has a control for frequency, signal gain, and emphasis (resonance).

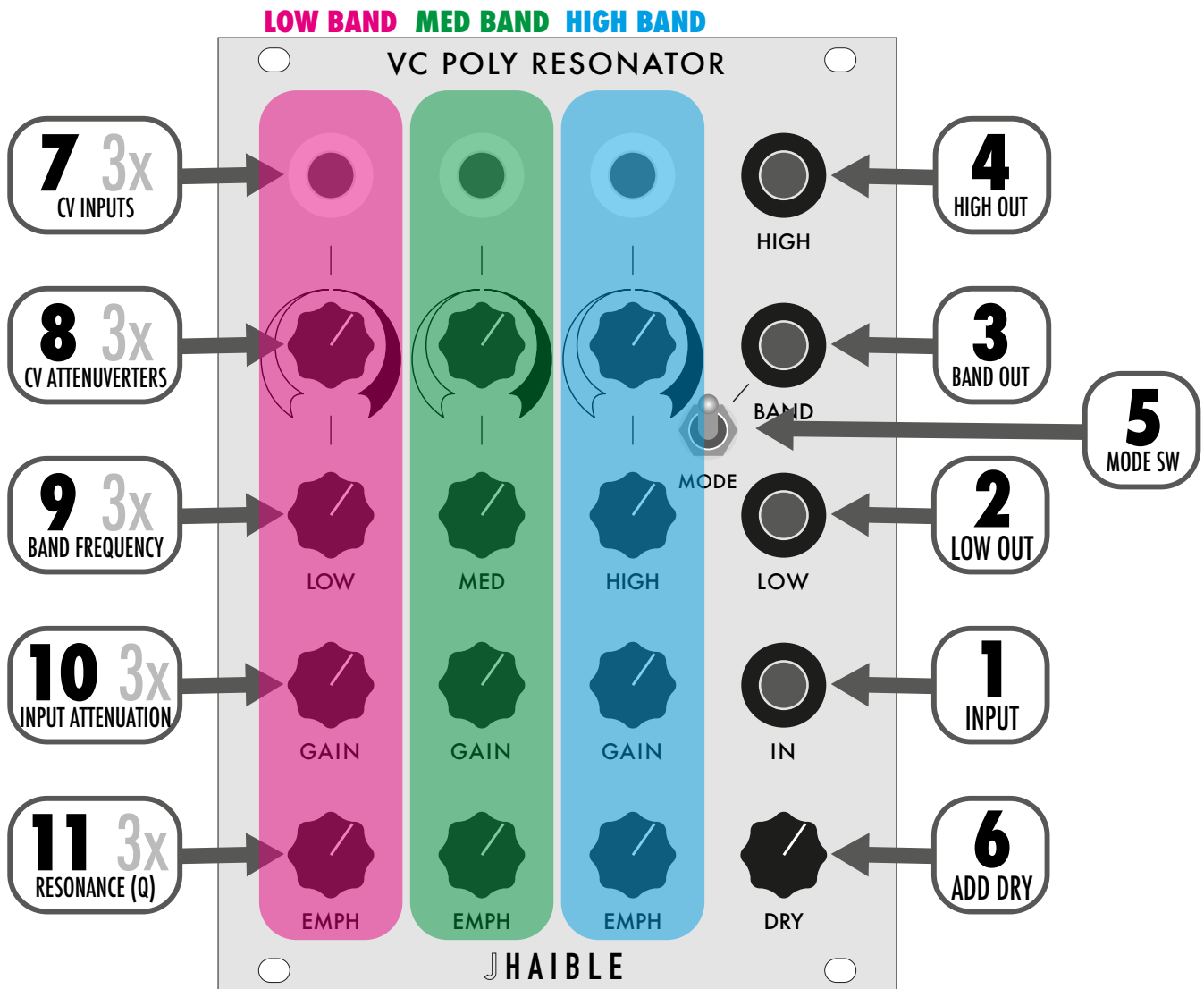
What's new? What's different?

As its predecessor, the core of the module comprises 3 filter bands - **LOW**, **MED(IUM)** and **HIGH**. In the previous version(s), the center frequency of each band could be set with a knob within a certain (limited) range. The VC Resonator now not only **adds VC control for each band**, but also **extends the ranges within which each frequency band can be set** - adjacent bands can now overlap or even cross over, for instance the LOW and MED bands can now be set (or moved!) so that the LOW center frequency is higher than the MED frequency.

Jürgen's original Resonator (like the Polymoog) had a switch to select one of 3 basic modes, i.e. only one mode could be used at a time. The Haible VC Resonator now provides the same 3 modes as separate outputs so they can be used simultaneously, e.g. for further processing like crossfading.

VC Resonator - Basic Operation

Send an audio signal into the **IN (#1)**, make sure all three **GAIN** knobs (#10) (or at least one) are not set fully CCW and listen to either output (**#2**, **#3** or **#4**). The **DRY** knob (#6) determines how much of the (dry) input signal is added to the processed signal, i.e. it is not a WET / DRY mix but rather a +DRY. Play with the **Frequency knobs** (#9), **GAIN** (#10) and **EMPHASIS** (#10) to shape the sound.



Input (#1) and Gain (#10)

Each **GAIN** knob (#10) determines how much of the input signal present at **IN** (#1) is actually sent into each filter band. The **GAIN** knobs act as attenuators. When all three **GAIN** knobs are set to minimum (CCW), the three filters do not receive any input signal, i.e. the 3 knobs act like a single attenuator at the input jack. Turning down **GAIN**, however, has also the effect of giving more weight to resonance (**EMPHASIS**, #11) especially when **EMPHASIS** is so high that it self-oscillates.

Outputs LOW, BAND and HIGH (#2, #3, #4)

LOW and HIGH provide a combination of the three LOW and HIGH outputs of each filter band. Of course, if the GAIN of any band is turned down completely (and EMPHASIS also), a band may not be present at all. The BAND output has a **MODE switch (#5)** that allows you to select whether the MED band is actually added to or subtracted from the other two frequency bands, providing an additional Band pass “notch” mode. Depending on the input signal and module settings, this has a more or less noticeable effect.

DRY (#6)

The **DRY knob (#6)** determines how much of the (dry) input signal is added to the processed signal, i.e. it is not a WET / DRY mix but rather a +DRY. As this can lead to phase cancellations, the DRY knob can have quite interesting sound shaping effects.

FREQUENCY (#9)

The **Frequency knobs** sets the center frequency of each filter band. These bands are not identical, but spaced out to cover (and exceed) the classic LOW, MED and HIGH ranges of the original Polymoog - that means each band is limited to a certain frequency window. The adjacent windows, however, overlap, so that the LOW frequency (turned up) can be higher than the MED frequency turned all the way down.

VC CONTROL OF FREQUENCY (#7, #8)

The frequencies of the three filter bands can also be voltage-controlled using three attenuverters. Turning the attenuverter right (“black swoosh” area) means a positive control voltage (CV) applied will have a positive (= increasing) effect on the frequency set by the knob (#9). When the attenuverter is turned left (“empty swoosh”), such CV will push the frequency down. While the VC control is primarily intended for control voltages - e.g. using a sequencer / programmer to step between different settings - interesting results can also be found by sending clicks or audio signals (e.g. feedback) into the VC inputs.

VC Resonator - Patch Ideas

Basic Pinging - using the Resonator as a sound source

Letting the Resonator resonate on a Using both sides combined as one tracking oscillator.

- Feed a click signal into the IN, e.g. a single spike (sawtooth form from a DSG) or a pulse (that will generate 2 clicks, one on each flank).
- Set the Frequency knob of each band to minimum (CCW).
- Set GAIN to about 50% and EMPH to maximum (or almost maximum).
- Use a Sequencer to control the CV inputs of each band, i.e. to step through different settings.
- Listen to any output and play with GAIN and EMPH to explore.
- Changing the input shape (rising edge) of the click slightly will have an effect, also dialing DRY in.

Abusive Pinging

Starting from the patch above, try swapping the input signals (click from DSG and sequencer outputs), like

- Send the click into a CV in rather than the IN.
- Try patching any output to any CV IN and play with the attenuator.
- Use one of the CV signals from the sequencer as input (this will again just use the steps as a click).

(Version 19.04.23)

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