Expert Sleepers Beatrix Analog Phaser Module User Manual

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Expert Sleepers Beatrix Analog Phaser Module

Introduction

Congratulations on your purchase of an Expert Sleepers “Beatrix”. Please read this user manual before operating your new module. Beatrix is a phaser, ofering voltage control over notch frequencies, efect depth and feedback (resonance). It also ofers an unusual “ofset” control allowing you to sweep the fIter notches without sweeping the resonant frequency. Further options are provided by the “phase” switch (which disables the phasing sound and essentially turns the module into a resonant peak fIter) and “sum” switch (which inverts the fItered signal, giving a diferent favour of phasing). Beatrix will self-oscillate at high feedback if desired, though the front panel control is factorytrimmed to stop just short of self-oscillation. The module is 100% analogue, using discrete transistor OTAs.

Installation

House the module in a Eurorack case of your choosing. The power connector is 16-pin Doepfer standard1. If using the power cable supplied with the module, the red edge of the cable is closest to the bottom edge of the PCB, and carries -12V. (“-12V” is marked on the PCB itself next to this end of the connector.) Be sure to connect the other end of the power cable correctly, again so -12V corresponds to the red stripe on the cable.

Power requirements

Beatrix draws up to 22mA on the +12V rail, and 21mA on the -12V rail. It does not use the 5V rail.

Inputs and outputs

Beatrix’s input and output jack sockets are illuminated, lighting red for positive voltage and blue for negative voltage. (Audio appears purple, since it is a rapid alternation of positive and negative.) Inputs with attenuators are indicated by a dotted line linking the socket to its corresponding attenuator knob.

From top to bottom, Beatrix’s sockets are:

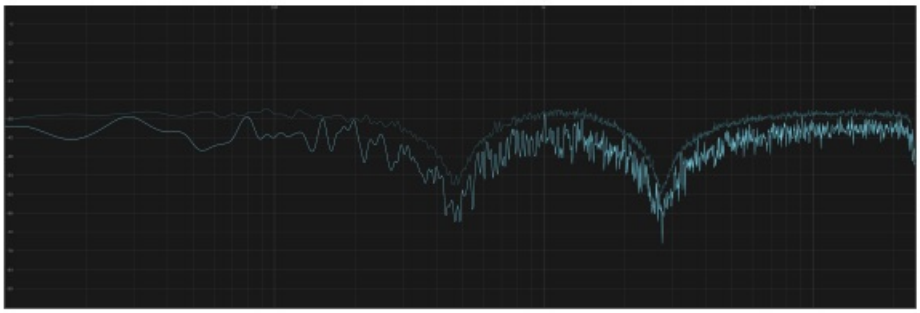
- Frequency CV input, with attenuator
- Frequency ofset CV input
- Depth CV input
- Feedback CV input
- Audio input, with attenuator

- Audio output

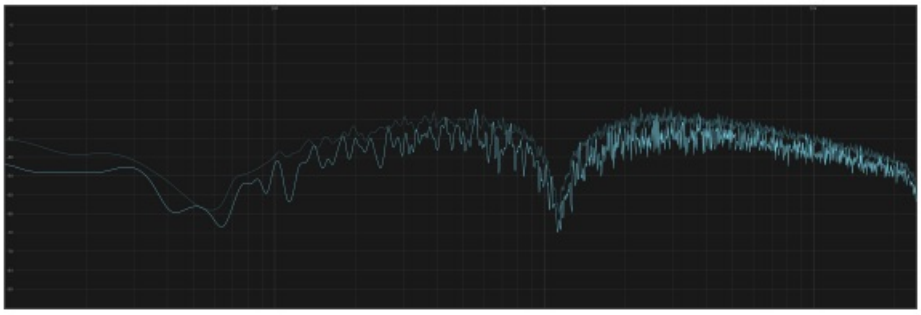
Controls

In addition to the two attenuators, there is a knob for frequency (blue), a knob for feedback (yellow), and a knob for depth (grey). The “Phase” switch enables the phaser efect. The efect works by adding the input signal with a phase-shifted copy of itself, causing the characteristic nulls in the frequency response. When the Phase switch is in the “1” position, the two signals are added, creating the phasing efect. When the switch is in the “0” position, only the phase-shifted signal is passed to the output, so phasing as such does not happen; you may still however get a fltering efect, especially when the feedback is raised. The “Sum” switch controls whether the phase-shifted signal is inverted before being added to the original signal. This simply gives you two somewhat diferent sounds. The traditional phaser efect is obtained by putting the switch in the “+” position. Below are screenshots of a spectrum analyser showing the efect of white noise passing through Beatrix with various settings. In all cases, Frequency is set to 5 and Depth to 10.

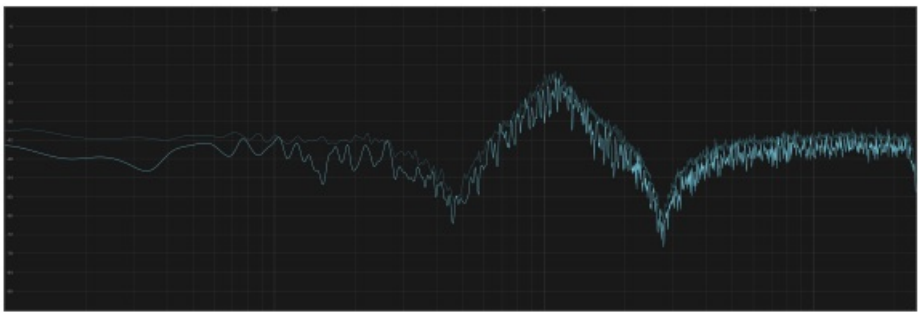
- **Feedback at 0, switches at “1” and “+”:**



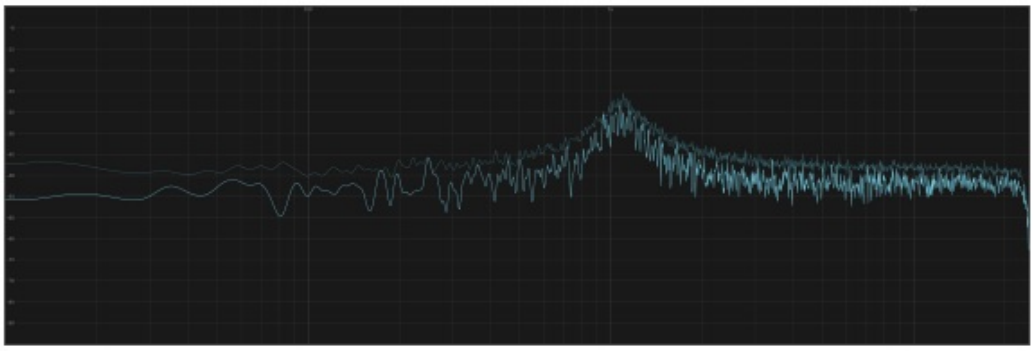
- **Feedback at 0, switches at “1” and “-”:**



- **Feedback at 8, switches at “1” and “+”:**

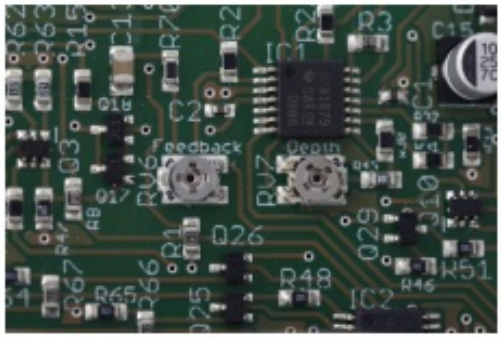


- **Feedback at 8, switches at “0” and “+”:**



Calibration

There are two trim pots on the Beatrix PCB, as shown below:



“RV6”, marked “Feedback”, scales the depth of the feedback control. It is factory-trimmed so that the feedback control turned fully clockwise doesn’t quite send the module into selfoscillation. “RV7”, marked “Depth”, adjusts the relative levels of the original and phase-shifted signals. It is trimmed to maximise the depth of the nulls in the frequency response.

Where to get help

Email, forum, and social media links can be found at the bottom of every page on our website2.

Acknowledgments

- **Black and white photography by Israel Denadai3.**
- **http://www.doepfer.de/a100_man/a100t_e.htm**
- **https://www.expert-sleepers.co.uk**
- **http://israeldenadai.com.br/bw**

Documents / Resources

	Expert Sleepers Beatrix Analog Phaser Module [pdf] User Manual Beatrix, Analog Phaser Module, Beatrix Analog Phaser Module

References

- Expert Sleepers

- Expert Sleepers