b:art instruments

b:efuddle

Dual Analog Effects Processor

User Manual

Revision: 1.0 • July 2025

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Introduction

b:efuddle is an analog effects processor designed for versatile signal manipulation, featuring two of each:

- Slew Limiter – Controls signal transitions with selectable response curves.
- Ring Modulator – Creates complex amplitude interactions between two input signals.
- Wavefolder – Adds harmonics by folding the waveform beyond its limits.

Safety Information

Ensure your modular system is powered off before installing the module. Only power on the system once every module is connected and properly installed in your system using the provided screws.

The module uses shrouded headers to minimise the risk of failure due to incorrect power cable orientation, however caution must be exercised to avoid plugging the power cable backwards into the power supply, depending on the model.

Do not expose the module to moisture or extreme temperatures.

Do not operate the module in environments with severe amount of dust in the air.

The module's inputs are protected against electrostatic discharge, but be careful when handling the module itself.

Module overview

1. Fold Input
2. Range Knob
3. Range CV Input
4. Shape Knob
5. Fold Output
6. Slew Limiter Input
7. Lin/Log Switch
8. Speed Switch
9. Slew Rise Knob
10. Slew Fall Knob
11. Slew Limiter Output
12. Rise Time Indicator LED
13. Fall Time Indicator LED
14. Ring Mod Carrier Input
15. Ring Mod Modifier Input
16. Ring Mod Output

Wavefolder

b:efuddle offers two identical Voltage-controlled Wavefolders, which alter waveforms by reflecting its peaks back into the signal range, creating complex harmonic overtones. It is particularly effective for adding richness to simple waveforms, such as sine or triangle waves.

Range Control

Range Control determines the threshold where folding begins, affecting the intensity of harmonics.

The Range CV Input allows for dynamic modulation of the folding effect, making it responsive to external sources such as LFOs or envelopes.

Shape Control

Shape Control fine-tunes how the folds are introduced, from smooth to more aggressive distortions.

Pairing the wavefolder with filtered noise or subharmonics can create gritty, textured sounds suitable for experimental synthesis.

Slew Limiter & Envelope Shaping

The Slew Limiter smooths out sudden voltage changes, making it an essential tool for shaping control voltages and modifying audio-rate signals.

Rise / Fall Knobs

Rise and Fall Potentiometers allow independent control over how quickly the signal rises or falls, useful for sculpting attack and decay characteristics.

When applied to pitch CV, the slew limiter can create gliding effects between notes, useful for legato playing styles or dynamic pitch shifts.

Log/Lin Switch

The Log/Lin Switch changes the curvature of the transition. Log mode introduces more natural, exponential changes, ideal for envelope shaping, while Lin mode ensures even, gradual slopes, suitable for steady voltage transitions.

3-State Speed Switch

The 3-State Speed Switch provides fine control over how quickly the limiting effect is applied, useful for anything from subtle portamento to exaggerated slow sweeps.

Ring Modulation

Ring modulation is a form of amplitude modulation that multiplies two signals together, producing a series of sum and difference frequencies.

- **Carrier (Input +)** – The primary signal that is modulated.
- **Modifier (Input -)** – The secondary signal that interacts with the carrier.
- **Output** produces a new signal that contains frequency components absent from the original inputs.

When using audio-rate signals, the effect generates metallic, inharmonic textures, commonly used in experimental sound design.

When using low-frequency signals, the effect introduces tremolo and rhythmic amplitude variations, making it ideal for dynamic volume shaping.

Pairing the ring modulator with a sine wave carrier and a voice input can create robotic vocal effects, a technique frequently used in early electronic music.

Technical Specifications

Operating voltages:	–12V / +12V
Power draw:	35 mA –12V / 40 mA +12V
Width:	14HP
Depth:	17mm (22mm with power header)
Audio Inputs/Outputs level:	10Vp-p (-5V/+5V)
CV inputs level:	0 – 5V
Output impedance:	1000ohm (all outputs)

CE

This product was tested and found compliant with the following standards:
EN 55032:2015/A11:2020, EN 55035:2017, EN IEC 63000:2018.
For details, please visit: **https://www.bartinstruments.com/conformity**

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