

## Installation

Ripples requires a **-12V / +12V power supply** (2x5 pin connector). The ribbon cable connector must be aligned so that the red stripe of the ribbon cable (-12V) is on the same side of the module's power header as the "Red stripe" marking on the board.

The power consumption is:  
**+12V: 35 mA; -12V: 35 mA**

## Calibration

Adjust the trimmer on the back of the module so that the tone emitted by the filter (when it self-oscillates) tracks a 1V/oct CV sent to the FREQ input.

## Online manual and help

The full manual can be found online at [mutable-instruments.net/modules/ripples/manual](https://mutable-instruments.net/modules/ripples/manual)

For help and discussions, head to [mutable-instruments.net/forum/](https://mutable-instruments.net/forum/)



**Mutable**  
Instruments



Ripples

**Liquid filter**





## Front panel

### Controls

**A. Resonance.** Ripples can be set to self-oscillate with a high resonance setting.

**B. Frequency.** The Cutoff frequency of the filter.

**C. FM Attenuverter.** Adjusts the amount and polarity of frequency modulation from the FM input.

### Inputs and Outputs

**1. CV inputs** for Resonance, Frequency (with 1V/Oct scale) and FM.

**2. Audio input.**

**3. Voltage-controlled output gain** for the LP4>VCA output.

**4. Filter outputs.** 2-pole band-pass, 2-pole low-pass, 4-pole low-pass, and 4-pole low-pass with amplitude controlled by input 3.