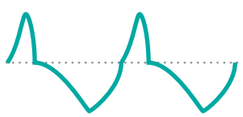
About unipolar and bipolar outputs

The bipolar output is not a mere scaled and offset version of the unipolar output! **It is made of two bumps**, a positive one occurring during the attack, and a negative one occurring during the release.

Unipolar

Bipolar



PLL mode

Hold the frequency range (B) button for 1s. Tides enters the PLL mode.

In PLL mode, a signal must be provided to the CLOCK input. **Tides will adjust its output frequency to match the frequency** of this signal or a multiple/division of it as set by the Frequency knob.

Hold the frequency range (B) button again to leave the PLL mode.

Tips and tricks:

- Tides works wonders as a **master modulator** for a classic analog VCO.
- When using Tides as an oscillator for bass sounds, **try both the unipolar and bipolar outputs**; and the medium and high ranges - they all sound different.
- Use the PLL mode to create **just-intonation melodies** on top of a drone sent to the CLOCK input.
- A **different flavor of sync sounds** can be obtained by patching a PWM or square source into the FREEZE input.
- Use the wavefolder on a low-frequency envelope to create **bumps and bounces**.
- Use the PLL mode, and **trigger the CLOCK input** from a rythmic sequencer.
- In typical Buchla fashion, the low/high tide outputs can be used to **chain envelopes** and **create complex shapes**.

Calibration

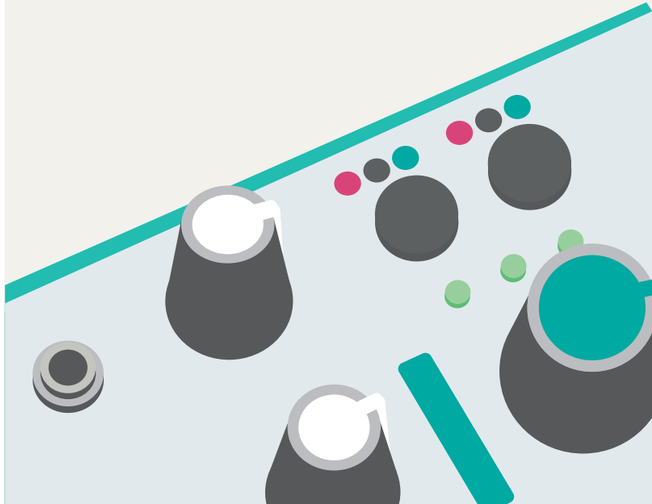
1. **Connect a patch cable to the FM input**. Leave the other end of the cable unplugged (this prevents the normalling to +/-1 semitone to be activated).
2. **Connect a patch cable to the Level input**. Leave the other end of the cable unplugged (this prevents the normalling to full amplitude to be activated).
3. **Connect a MIDI>CV interface** or precision voltage source to the V/Oct input.
4. **Hold the Mode switch (A) for one second**. All LEDs are lit in yellow.
5. **Play a C2 note**, or send a 1V voltage from your CV source.
6. **Press the mode switch (A)**. All LEDs are lit in green.
7. **Play a C4 note**, or send a 3V voltage from your CV source.
8. **Press the mode switch (A)**.

The module is now calibrated for accurate V/Oct operation!

Mutable Instruments

Tides

Tidal modulator



About Tides

Tides is, depending on your point of view, a voltage-controlled looping AR/AD generator which extends into the audio frequencies; or a dynamically waveshaped synth voice with the ability to go into subsonic territories.

Installation

Tides requires a **-12V / +12V** power supply (2x5 pins connector). The red stripe of the ribbon cable (-12V side) must be oriented on the same side as the "Red stripe" marking on the board.

The power consumption is as follows:
-12V: 5mA ; +12V: 55mA.

Online manual and help

The full manual can be found online at
mutable-instruments.net/modules/tides/manual

For help and discussions, head to
mutable-instruments.net/forum

Please refer to the online manual for detailed information regarding compliance with EMC directives

Front panel

Controls

A. Mode selection. Goes back and forth between one-shot AD (green LED), looping (LED off), and one-shot AR (red LED) modes.

B. Range selection. Goes back and forth between very low (green LED), low (LED off), and audio (red LED) range.

C. Frequency/rate control.

D. Attenuverter for the FM input. When no signal is patched into the FM input, serves as a fine tuning control.

E. Waveshape of the ascending and descending segments.

F. Ratio between the duration of the ascending and descending segments.

G. Curve transformation. From 12 o'clock to 7 o'clock (counter-clowise), applies a 2-pole low-pass filter. From 12 o'clock to 5 o'clock (clockwise), applies a wavefolder.

Inputs and Outputs

1. 2. 3. CV inputs for shape, slope, and smoothness controls.

4. Trigger/Gate input. On a rising edge, resets the waveform and starts the ascent. On a falling edge, and in AR mode, starts the descent.

5. Freeze input. A gate signal applied on this input can stop the envelope/oscillator and hold the signal.

6. V/Oct input. 1V/Oct frequency/rate control.

7. FM input, controlled by the attenuverter (D).

8. Waveform amplitude CV - normalled to a constant 8V source.

9. Clock input for PLL operation.

10. 11. End of attack (high tide) and **end of decay/release** (low tide) outputs.

12. 13. Unipolar (0 to 8V) and bipolar (-5V to 5V) **outputs**.