

RAMPAGE

USER MANUAL



POWERING THE MODULE | THANKS FOR PURCHASING A MODULE FROM BEFACO!
MODULE | BEFORE YOU PLUG THIS MODULE IN...

1. **Disconnect your cabinet from the mains.**
2. **Triple check the power cord polarity.** The coloured line on the cable (pin number one) is the -12V rail.
3. If you plug the module backwards you might burn it out and unfortunately this is not covered by our warranty.
4. If you have any questions about this product please send them to: befacosynth@gmail.com



INTRODUCTION | THE RAMPAGE IS BEFACO'S UNIQUE TAKE ON AN OLD DESIGN: THE SERGE/BUCHLA RAMP GENERATOR.

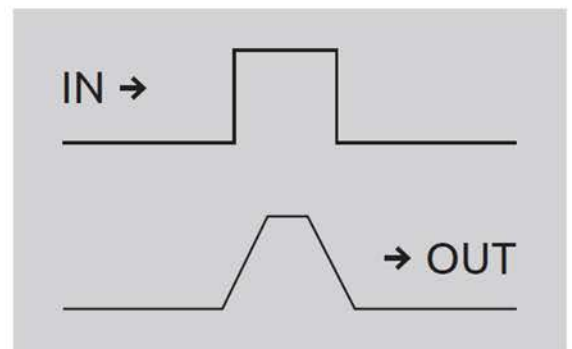
We took the idea of a “patch programmable” function generator/processor, put two units in the same module and expanded them with powerful new functions and ways to combine them.

The module is built around two voltage controlled integrators (an integrator is a device whose output signal is the time integral of its input signal). In other words (and in synthesis terms) it is something capable of limiting the amount of voltage change that can occur in a given time.

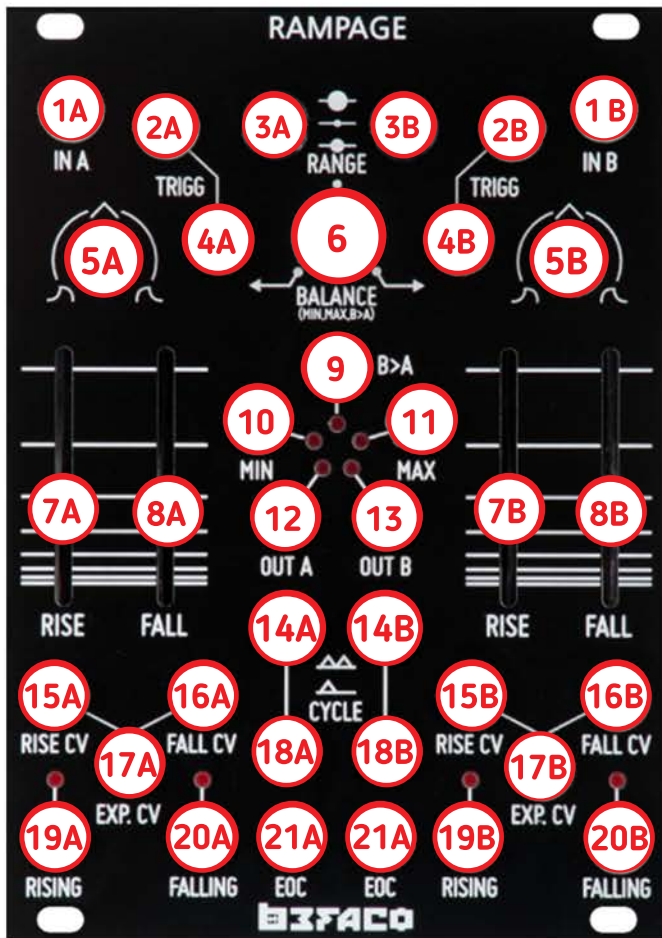
Integrators (also known as Lag Processors or Slew Limiters) allow you to process your voltages, converting sharp square waves in ramp-like waveforms.

These lovely devices can for instance convert a gate signal into a simple envelope, or achieve a “portamento” (or glide between notes) effect when applied to pitch CV.

Another well-known application of an integrator is its ability to low-pass filter an audio signal. This device is also capable of generating its own waveforms.



MODULE REFERENCE | AN EXAMINATION AND DESCRIPTION OF THE VARIOUS FUNCTIONS OF THE MODULE



1 A/B. MAIN INPUTS (IN A/B)

This is where you connect the signal you want to process (CV or Audio). Insert a gate signal into it to convert the gate signal into an AD (Attack-Decay) envelope with sustain (same sustain level as your gate signal).

2 A/B. TRIGGER INPUT (TRIGG)

Starts the internal function generators.

3 A/B. RANGE SELECTOR SWITCHES (RANGE)

Choose between three different working speeds:

1. High (small dot): Use this speed for audio rate applications and fast processing.
2. Medium (medium dot): For envelope oriented rates.
3. Low: (big dot): For LFO like applications and loooong envelopes.

4 A/B. MANUAL TRIGGER BUTTONS (TRIGG)

Push to manually initialise the internal function generators.

5 A/B. SHAPE CONTROLS

Change the integrator's response from exponential to either linear or logarithmic.

6. BALANCE CONTROLS (BALANCE)

Acts as a crossfader for the levels of signals from channels A & B before they go to the mix section. This parameter affects just the A>B (9), MIN (10) and MAX (11) outputs. It doesn't have any effect on OUT A & B (12 & 13).

7 A/B. RISE CONTROLS (RISE)

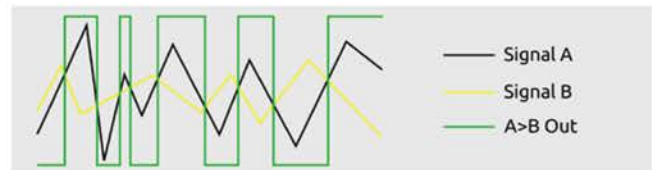
These are manual controls for the rise time. Faders up = longer rise time. Given that time and frequency are related in an inversely proportional (opposite) way, as you move the faders up the frequency decreases when CYCLE (14A/B) is in "cycle mode" or when using the device as a low pass filter.

8 A/B. FALL CONTROLS (FALL)

Same working principle as Rise Controls, but controlling fall time.

9 A/B. COMPARATOR OUTPUT (B > A)

Outputs 10V when channel B's output is greater than channel A's.



10. MINIMUM OUTPUT (MIN)

AKA "Analog AND". Compares output on both channels and outputs the minimum value at any time.



11. MAXIMUM OUTPUT (MAX)

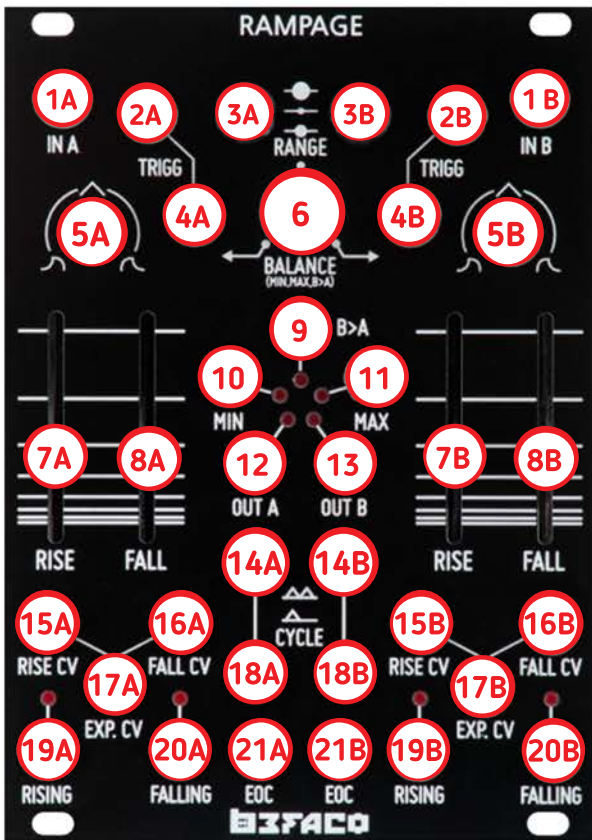
AKA "Analog OR". Compares output on both channels and outputs the maximum value at any time. Sometimes this is also referred to as a "Peak Follower".



12-13 A/B. MAIN OUTPUTS (OUT)

Main output for channels A and B.

MODULE REFERENCE | A DESCRIPTION AND EXAMINATION OF THE VARIOUS FUNCTIONS OF THE MODULE



14 A/B. CYCLE SWITCHES (CYCLE)

Choose between two modes of operation:

1. "One shot": Stops when falling ramp reaches 0 Volts. Use this mode for envelope generation
2. "Cycle": This mode acts as a function generator. Re-triggers again when falling ramp reaches 0 Volts.

- Use "cycle" mode for wave generation (either LFOs or Audio rate).
- "One shot" and "cycle" modes are only able to be re-triggered during the falling state.
- In "cycle" mode, TRIG and IN can be used as hard and soft sync inputs respectively.

15 A/B. RISE CV INPUTS (RISE CV)

Remote controls for the rise time. It is the CV equivalent to the RISE fader.

16 A/B. FALL CV INPUTS (FALL CV)

Same as RISE CV but for the FALL fader.

17 A/B. EXPONENTIAL CV INPUTS (EXP. CV)

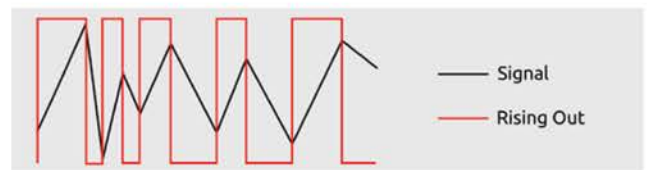
- Controls RISE and FALL at the same time.
- This input reacts in the opposite/inverse way to RISE/FALL CVs. The more voltage the shorter the time. This inverted input is useful when using the Rampage as a Filter or Oscillator to control either frequency or cut-off.

18 A/B. CYCLE GATE INPUTS (GATE)

Inverts the CYCLE switch; when in "one-shot" mode it turns it to "cycle" and vice-versa. For extra flexibility, the Cycle gate input won't trigger the rampage. It only puts it in "cycle" mode. If you want to trigger it and put it on "cycle" mode at the same time (for gated LFO/VCO generation) just send your gate TRIGG and to the CYCLE at the same time.

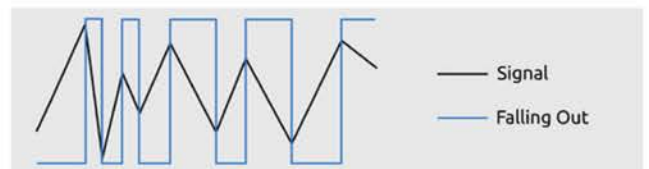
19 A/B. RISING GATE INPUTS (RISING)

These are slope detector outputs. Each time the output is rising a 10V gate is present. When using the slope detector with external signals you will need to adjust the speed of the lag processor to the speed of the incoming signal in order to avoid erratic behaviour. Use the slope detector to extract gates from analog signals, to detect changes, or to chain the A and B Rampage channels to generate complex functions.



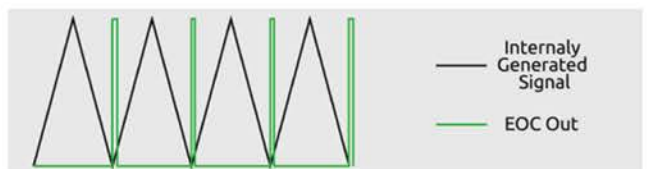
20 A/B. FALLING GATE OUTPUTS (FALLING)

Same as RISING, but works only during fall times.



21 A/B. END OF CYCLE OUTPUTS (EOC)

Delivers a short 10V pulse each time the internal function generator reaches 0V. EOC doesn't work with external signals.



PATCH IDEAS | SOME IDEAS TO GET YOU STARTED WITH YOUR MODULE

VOLTAGE CONTROLLED ATTACK

External trigger to TRIGG. OUT to the desired destination.

ATTACK SUSTAIN RELEASE ENVELOPE

External gate to IN. Adjust RISE & FALL faders. OUT to the desired destination.

VCO/LFO

- By putting CYCLE in “cycle” mode, you can create different waveforms. For square waves simply take an output from RISING or FALLING.
- For triangle waves keep RISE & FALL faders at the same level and move them together to change frequency.
- For sawtooths put the RISE fader at minimum and use just the FALL fader to change frequency.
- Other waveshapes can be made by combining various fader positions with adjustments to the SHAPE Control knob.
- For PWM pulse use the B>A as an output and plug a voltage into IN B. IN B becomes the pulse-with control

Use TRIGG to sync waveforms and use IN to create a soft sync.

COMPLEX LFO

The resulting waveforms at MAX and MIN outputs can be a lot of fun. Adjust the RISE and FALL sliders and take an output from MAX or MIN to hear the resulting complex oscillations.

Try syncing the two channels (both in cycle mode) by connecting RISING, FALLING or EOC of one channel to the TRIGG of the other channel.

GATED VCO/LFO

Set CYCLE switch to “one shot” mode. Send the same gate signal to CYCLE and TRIG.

“PING PONG” LFO

EOC from channel A to TRIG on channel B. EOC of channel B to TRIGG on channel A. Set both channels’ CYCLE to “one-shot” mode. Push TRIGG button on one of the channels. Take output from MAX.

LOW PASS FILTER

External audio to IN. Set RANGE switch to “fast” (small circle). Adjust RISE/FALL sliders.

SOFT SYNCING LOW PASS FILTER

External VCO to IN. Set RANGE switch to “fast” (small circle). Set CYCLE switch to repeat mode.

ANY SHAPE TO SQUARE WAVE CONVERTER

Connect the wave you want to shape at IN. Take output from RISE or FALL.

“ULTRA-NASTY” DISTORTION

Connect your favourite audio samples to IN, using RISE or FALL as an output.

POLYRHYTHMIC GATE GENERATOR

Create LFOs on both channels and take an output from B>A to create interesting semi-random gate patterns.

TRIGGER BURST GENERATOR

Put both channels on “one shot” mode.

Connect RISE from channel B to CYCLE on channel A. Send an external trigger to TRIGG on channels A & B. Channel A will repeat the trigger during the time channel B is rising. The speed of channel A dictates the number of triggers on the burst, and Channel B’s rise time is the total duration of the burst.

VOLTAGE CONTROLLED SLEW LIMITER WITH INDEPENDENT ATTACK AND DECAY CONTROLS AND CONTINUOUSLY VARIABLE WAVESHAPING BETWEEN LOGARITHMIC, LINEAR AND EXPONENTIAL (INCLUDING PORTAMENTO).

Connect an external pitch voltage (from say, a keyboard via a MIDI CV converter) to IN. Connect OUT to the pitch input of a VCO and play notes on a keyboard for a delightful portamento effect.

PATCHING IDEAS | SOME IDEAS TO GET YOU STARTED WITH THE RAMPAGE. CHECK OUT [HTTPS://WWW.YOUTUBE.COM/WATCH?V=_T-ARZFXUXA](https://www.youtube.com/watch?v=_T-ARZFXUXA) FOR A VIDEO DEMO OF THESE PATCHES.

VOLTAGE CONTROLLED TRIGGER DELAY

Flip both channels' CYCLE switch to "one-shot" mode. Connect EOC from channel A to TRIGG on channel B and connect EOC from channel B to TRIGG on channel A. Press one of the TRIG buttons. Use MAX as the output.

ENVELOPE FOLLOWER WITH ADJUSTABLE RESPONSE TO RISING AND FALLING PARTS OF THE ENVELOPE

Connect an audio source to IN on channel A. Keep Channel B Unused. Use MIN as Envelope Out. Adjust the faders to the desired response. RISE & FALL out can be used as trigger extractors.

VCO + ENVELOPE + TIMBRAL GATE

Set up channel A as a VCO. (Set CYCLE to "cycle" mode and its RANGE to high setting).

Set Channel B CYCLE to one-shot mode. Send an external trigger signal to TRIGG on channel B. Use MIN as the output.

COMPARATOR DISTORTION/MIXER

Beware: only for harsh-noise addicts!

Put two musical sounds through IN on channels A & B. Use A>B, MIN or MAX as a mixed output.



BLOCK DIAGRAM | IMAGE SHOWING HOW THE VARIOUS PARTS OF THE MODULE INTERACT

