

SMASHING TREMOLO

TREMI NATOR

矢筒

Treminator is based on the synthesizer's last signal flow stage, called the VCA (voltage controlled amplifier). We took this simple circuit and adapted it into a really expressive effect pedal combined with an LFO, which is controlled by envelope generators. Forget everything you knew about tremolos and prepare to be amazed...

MAIN PAGE CONTROLS

These are the hands on controls, that you can access without holding down the shift.

VCA IN accepts up to +/-10V (works well with 0-5V)
This controls the pedal's level, even if the effect is on a By-Pass mode

CV IN accepts up to +/-10V (works well with +/-5V)
Controls the LFO Rate

CV OUT sends +/-5V
Sends the LFO out



Rate Knob

Manual control over the LFO speed. Its range is from 20 sec to 220hz, depending on the DIV and [SHIFT]+DIV selection

Fade Knob

Fade in and Fade out over the tremolo depth. Set at 50% to disable this function. For more info check the "FADE AND EXPRESSION" chapter

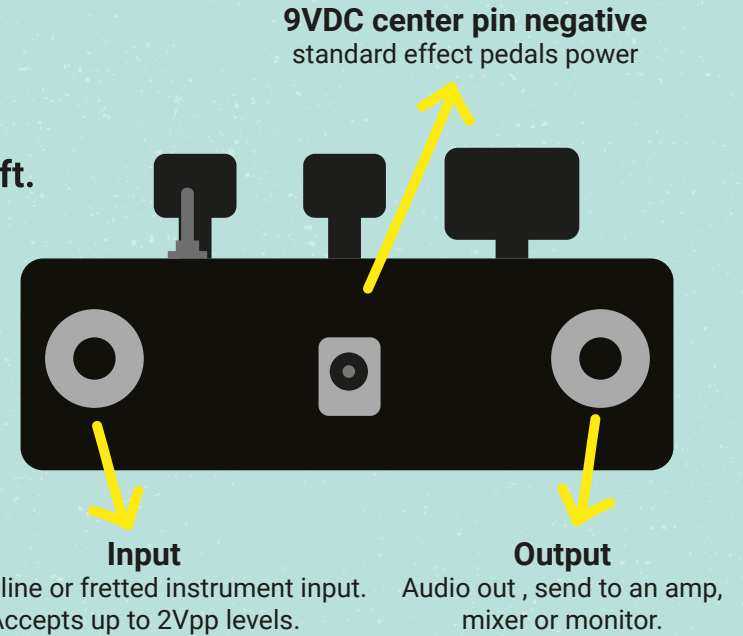
Shape Knob

Select an LFO waveform. This is not a continuous wave-shaper, but a 5 position selection.

On/Off Indicator

ON footswitch

Set the effect ON or OFF. Also while holding the footswitch down, it works as a SHIFT function button.



9VDC center pin negative standard effect pedals power

Input

Audio, line or fretted instrument input. Accepts up to 2Vpp levels.

Output

Audio out, send to an amp, mixer or monitor.

DIV Toggle Switch

Here you can set the divisions of the LFO Rate (or the multiply on the rate indication). It's x1, x3, x4

Depth knob

Set the Depth of the Tremolo effect

Signal to Gate Indicator

Tap footswitch

Tap tempo over the LFO rate. When holding the TAP and the ON buttons down for 3 sec, you will save the SHIFT state

GETTING STARTED

- Send an audio signal or an instrument to the input
- Send the output to an amp or a monitor
- Power the effect by using a 9VDC center negative power adapter (specialized for effect pedals)
- Press the ON button to engage the effect
- Then set an initial preset as followed:

RATE = 50% SHAPE = triangle FADE = 50% (that is off actually) DEPTH = 50% DIVISIONS = 1 (left)

This should result into a “normal” 1 sec tremolo effect. Start from here and try to experiment with the rest of the functions.

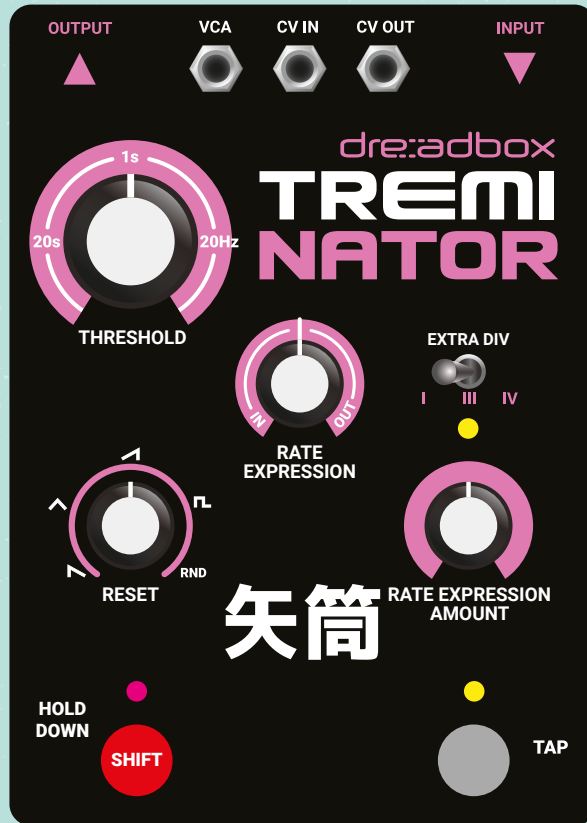
In order to enable the **secondary controls**, press and hold down the ON button. While this is on hold, you have access to different parameters.

If you'd like to save the secondary functions' settings, press and hold ON+TAP for 3 seconds. The LEDs will flash, indicating that this state is saved and the next time you power the pedal, you will have it as you left it.

MAIN PAGE



SECONDARY CONTROLS



These are the **SHIFT** controls, that you can access while holding down the ON button. Remember, in order to store this so that the pedal remembers them the next time you power it, you must press and hold both footswitches for 3 seconds!

RATE = THRESHOLD

Controls the signal to gate function. For more info about signal to gate, check the “FADE AND EXPRESSION” chapter.

SHAPE = RESET

This controls if the Waveform of the LFO will be reset whenever a signal to gate appears. When at 0-49% sets the LFO waveform reset OFF. At 50-100% sets the LFO waveform reset ON. For more info about LFO waveform reset check the “FADE AND EXPRESSION” chapter.

FADE = RATE EXPRESSION

This acts as the LFO speedup (0-49%), or slowdown function (51-100%). At 50% travel this is set to off. For more info about speed expression check the “FADE AND EXPRESSION” chapter.

DEPTH = RATE EXPRESSION AMOUNT

Sets the amount of speedup/slowdown. For more info about speed expression check the “FADE AND EXPRESSION” chapter.

DIV toggle switch: extra divisions over the LFO rate. Its x1 , x2 , x4. Those are multiplied to the main DIV selection, allowing for many combinations and up to a x16 multiply over the rate control.

FADE AND EXPRESSION

1. SIGNAL TO GATE

A signal to gate, is the process of reading and detecting an audio signal and then turn it into an ON/OFF function.

When the audio signal reaches a certain level, an ON order is produced, while when the signal falls below the same level, an OFF order is produced.

The level that the ON/OFF is produced, can be manually specified by the Threshold control knob.

[Threshold is controlled with the SHIFT+RATE knob]

The lower the Threshold amount, the easier an ON order will be produced.

But what is the use of the signal to gate when using the Treminator effect pedal?

A. WAVEFORM RESET: Restarts the LFO waveform [that is when SHIFT+SHAPE is set to more than 50%]

B. FADE IN/OUT: Activates the Tremolo's amount expression

C. SPEEDUP/SLOWDOWN: Activates the LFO's speed expression

2. LFO WAVEFORM RESET

In order to activate this feature, you need to set the **WAVEFORM RESET** [SHIFT+SHAPE] at 50% or more. When you do this, each time a new Signal to Gate goes ON, the LFO will restart its waveform. To easily understand this effect, set a very hard and relatively slow (3-4 sec) tremolo effect and observe that the LFO will start over.

A waveform reset is also produced by the TAP TEMPO footswitch, each time a new tempo is received.

3. FADE IN/OUT

A FADE IN effect in Treminator, occurs when the tremolo depth starts from 0% and reaches up to the level you have the DEPTH knob set to.

For example: If you have the DEPTH knob at 50%, and you set some FADE IN amount, each time a signal to gate is produced, the tremolo effect disappears and gradually comes back to the 50% DEPTH level.

The FADE OUT does the exact opposite:

It starts from the DEPTH level, only to gradually reach 50% level.

4. SPEED EXPRESSION

This effect acts as the above feature, but instead of controlling the LFO depth, you control the LFO RATE. So, when having some SPEEDUP amount, you start from the indicated RATE amount and you speedup according to how much speed RATE EXPRESSION AMOUNT you have applied.

The SLOWDOWN is the exact reverse: You start at the RATE EXPRESSION AMOUNT, only to reach the LFO RATE you have set.

5. SETTING UP THE SIGNAL TO GATE

In order to successfully use the above features, you need to have the Signal to gate set right.

Connect the pedal and set it up as specified on the "Getting started" section.

Use your instrument as you would do in normal conditions and observe the right LED.

You want to be able to fully and easily control when the LED goes ON or OFF.

Adjust the THRESHOLD amount until the above is achieved.

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SPECIFICATIONS

- CMOS Buffered Bypass
- 9VDC center pin negative supply 150mA at least
- Mono IN/OUT
- All IN/OUT are TS mono jacks
- dimensions: 14x10x5 cm
- weight: 0,525 kg

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Circuit: Analog signal, digital modulations

Bypass: Buffered opamp, a constant 3 to 4dB volume drop is expected and is compensated over the tremolo effect, to counter the "signal volume drop" feeling a tremolo has.