



MOUTARDE





SPECIFICATIONS

Power Supply (not included):
DC 9V 100mA center negative
Size: 19x18x5 cm
Weight: 0,9Kg
Relay true bypass
CV in: 0-5V

OVERVIEW

At the heart of MOUTARDE, there are 4 low-pass filters running in parallel.

Each filter can be controlled independently. Cutoff (**FREQ**) , resonance (**PEAK**) and modulation depth (**MOD**)

You can feed the filters by 3 ways: dry signal, gated fuzz or PLL

PLL consists of 4 audio-controlled squarewave-oscillators. Octaves, fifths, simple or complex chords can be obtained by tweaking 2 rotary switches. (**VOICINGS**) , (**TRANSPOSE**)

Filters can be blended with the dry signal. (**MIX**)

Modulation applied to filters frequency can be either envelope, LFO or expression pedal. (**MOD**)

The LFO speed can be controlled by envelope or expression pedal. (**LFO CTRL**)



FILTERS

As mentioned before, there are 4 resonant parallel low-pass filters.

They were specifically designed not to oscillate at highest frequencies, so as to prevent any possible damage to your ears or speakers.

Each filter has its own individual control (mini-knobs) :

Frequency cutoff: **FREQ**

The frequency range of the filters goes from sub-bass up to mid-treble.

Modulation depth: **MOD**

Resonance: **PEAK**

Fully CW the filters are oscillating

FILTERS knob controls the global level of the filters, it's useful if you want to tame things in some situations.

MIX knob is used to blend the dry signal with the filtered signal. Fully CCW is dry only and fully CW is filters only.



MOD

This rotary switch selects which modulation is applied to filters: envelope down, envelope up, LFO, expression pedal

In addition, it shifts the frequency range of each **FREQ** knob up or down.

envelope down = higher frequencies.

envelope up = lower frequencies.

LFO or expression pedal = mid frequencies.

ENVELOPE

SENS sets the sensitivity of the envelope generator.

Settings will vary according to your playing dynamics, your instrument (guitar/bass) or pickups (single coil/humbucker).

This envelope generator is followed by a slew limiter that will slow/smooth the envelope:

ATTACK slows down the attacks

DECAY slows down the decay

When increasing **ATTACK**, you may need to increase **SENS**



LFO

This is a simple triangle LFO with two frequency ranges: **SLOW** and **FAST**.

LFO frequency is set by the small **SPEED** knob. The corresponding LED will blink according to the speed.

BONUS FEATURE: when the switch is on **FAST** position, LFO will be acting on other modulations (envelope down, envelope up, expression pedal).

EG: if **MOD** selector is on envelope up and LFO switch is on **FAST**, the resulting modulation will be an envelope modulated by a LFO. (can be better heard with slower envelopes)

LFO CTRL

With this rotary switch, the LFO rate can be controlled by: (from left to right) none, envelope down, envelope up, expression pedal

In this case, the **SPEED** knob will set the slowest rate. (don't put it fully CW, you wouldn't notice any speed modulation)



FUZZ

It's a basic PNP transistor gated fuzz.

It's placed just before the filters input, switching it on has no affect on **SENS** or on the dry sound.

FUZZ switch turns it on or bypasses it.

FUZZ knob changes the fuzz texture from soft saturation (fully CCW) to hard squared fuzz (fully CW).

The gate starts to engage around 12 o'clock. You'll be able to hear the noise floor disappearing.

EXPRESSION PEDAL / CV

You can control the filters frequencies or LFO rate with external hardware.

If using a classic/passive expression pedal, use a TRS stereo jack.

If you use CV signal (0-5V), then use a TRS stereo jack with RING detached. (it would temporarily work with a mono jack, but for some reason it's better to use the cable described above)



PLL

PLL (Phase Locked Loop) is a technology allowing the control of a VCO (Voltage Controlled Oscillator) by an audio source.

The PLL will only work properly when playing single notes, avoid playing chords unless you want to hear sonic chaos.

For best tracking with guitar and bass, please use your neck pickup at full volume. Turning CCW your guitar/bass tone knob and playing above the 7th fret might be helpful too.

SENS mini-knob determines the sensitivity of the PLL. Fully CW will give the longest sustain. 9 o'clock is a good setting for guitar while 12 o'clock will be better on bass.

FOLLOW mini-knob determines how fast the PLL is following the changes of the input signal. Fully CW, you'll obtain strange oscillations. Fully CCW, the attack of the PLL is slowed down. Best setting is 9 o'clock if **GUITAR/BASS** switch is set on guitar and 12 o'clock if set on bass.

GUITAR/BASS switch is about the range of the VCOs, which is limited. Set it on guitar if you play guitar (obviously) or any instruments in the medium-high range. Set it on bass if you need to play in a low range (then you might hit a limit on higher notes).



PLL

The PLL section creates 4 squarewave VCOs with different notes.

VCO1 is your root note, that means the exact note you're playing. It is routed to the first filter (from the left).

VCO2 will be either an octave and a 3rd or 5th down of your root note, depending on the **3RD/5TH** switch setting, and goes into the 2nd filter.

VCO3 and VCO4 can carry different intervals depending on the **VOICINGS** rotary switch (see PLL Tables), and are routed to the 3rd and 4th filter.

Finally, when playing single note melodies, you will obtain chords moving in parallel.

PLL ON/OFF does what it should. Fuzz should be deactivated while in PLL mode. If activated, this will result in bad attack and longer sustain.

TRANSDPOSE rotary switch shifts VCO2, VCO3 and VCO4 of the indicated interval (see PLL Tables). VCO1 stays unchanged.

GUITAR/BASS switch also shifts VCO2, VCO3 and VCO4 an octave up when on bass position.

HOLD footswitch is used to momentary freeze VCO2, VCO3 and VCO4.

This function is not working perfectly as you'll have more or less detune depending on other settings. Best tuning will be obtained with **GUITAR/BASS** switch set on bass, and **TRANSDPOSE** rotary switch set on 6th, 7th, 8th or 9th position.



PLL TABLES

TRANSPOSE	
-1 OCT	-12
UNI	0
5TH	+7
+1 OCT	+12
3RD	+16
5TH	+19
b7TH	+22
+2 OCT	+24
9TH	+26

VOICINGS	VCO3	VCO4
1	0	-12
2	-7	-12
3	-12	-24
4	-7	-24
5	-7	-26
6	-12	-26

5TH/3RD	VCO2
5TH	-19
3RD	-16

GUIT/BASS	
GUIT	0
BASS	+12



PLL ON/OFF



FUZZ



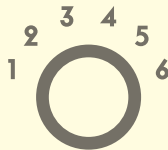
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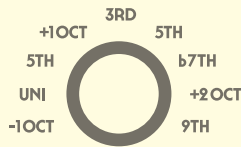
FILTERS



SENS



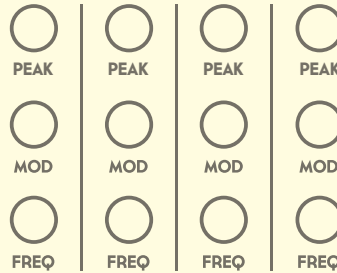
VOICINGS



TRANSPOSE



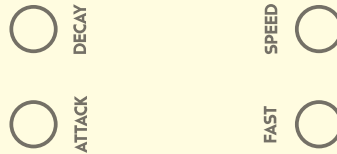
FUZZ



ENV DOWN
ENV UP
LFO
EXP



MOD



FAST
SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



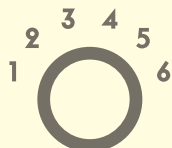
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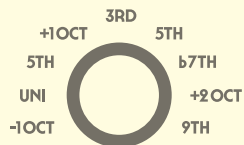
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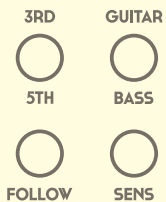
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK

SPEED



FAST



SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



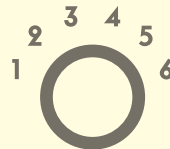
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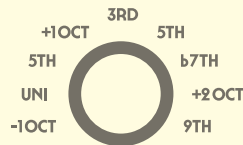
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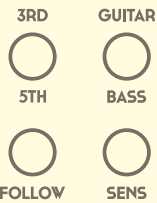
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ



MOD



DECAY



ATTACK



SPEED



SLOW



LFO CTRL





PLL ON/OFF



FUZZ



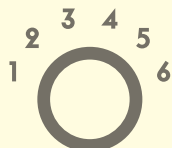
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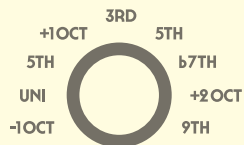
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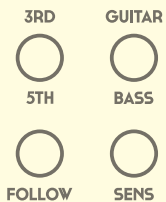
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



FAST

SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



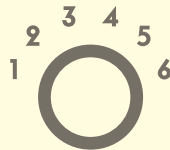
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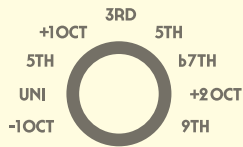
FILTERS



SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK

FAST
SLOW



ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



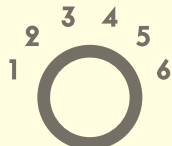
MIX



FILTERS



SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK

SPEED



FAST



SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



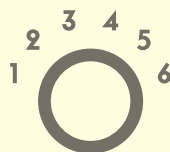
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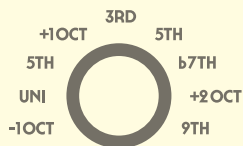
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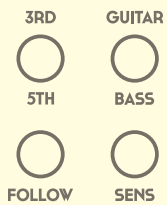
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ



MOD



DECAY



ATTACK



SPEED



SLOW



LFO CTRL





PLL ON/OFF



FUZZ



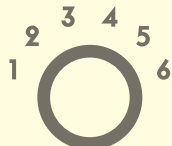
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FILTERS



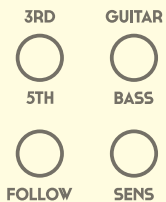
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



FAST

SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



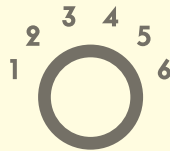
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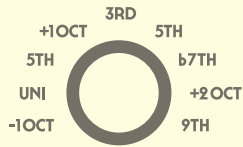
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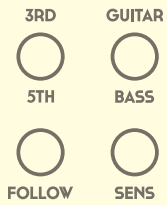
SENS



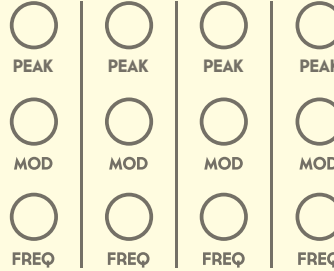
VOICINGS



TRANSPOSE



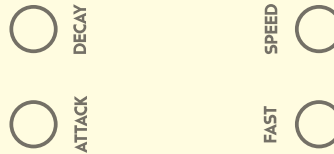
FUZZ



ENV DOWN
ENV UP
LFO
EXP



MOD



FAST
SPEED
SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



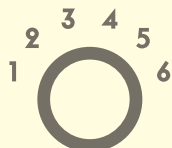
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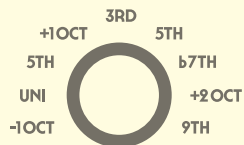
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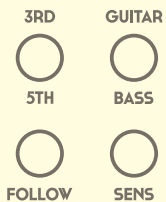
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



FAST

SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



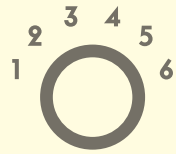
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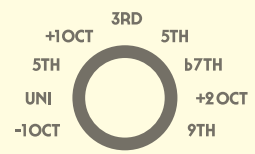
FILTERS



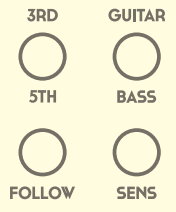
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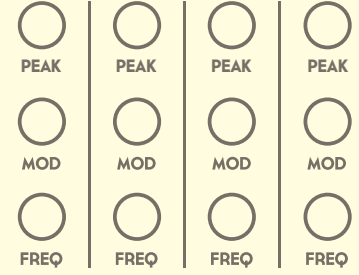
VOICINGS



TRANSPOSE



FUZZ



ENV DOWN
ENV UP
LFO
EXP



MOD



ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



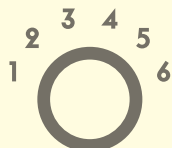
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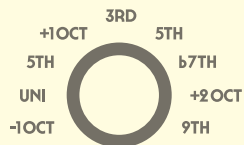
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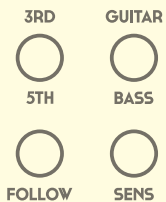
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



FAST

SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



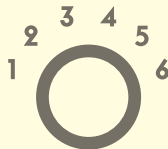
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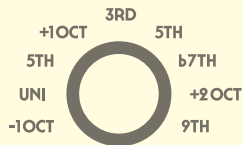
FILTERS



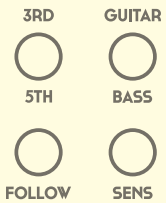
SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL





PLL ON/OFF



FUZZ



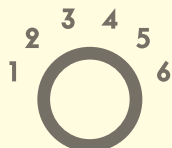
MIX



FILTERS



SENS



VOICINGS



TRANSPOSE



FUZZ



PEAK



PEAK



PEAK



PEAK



MOD



MOD



MOD



MOD



FREQ



FREQ



FREQ



FREQ



3RD



GUITAR



5TH



BASS



FOLLOW



SENS

ENV DOWN
ENV UP
LFO
EXP



MOD



DECAY



ATTACK



SPEED



FAST

SLOW

ENV DOWN
ENV UP
EXP



LFO CTRL







פוסט.פוסט

