Lion Distortion

Overview, Features, and how to use the JET Lion Distortion

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Overview

Basic overview and features of the JET Lion Distortion

Overview

Description

Introducing the Lion, a 100% all analog signal path, programmable distortion pedal with onboard presets and full midi control. The Lion is an op amp based distortion with hard clipping diodes placed after the feedback loop of the op amp. While it is it's own unique circuit, it can be closely compared to similar type circuits like the Boss DS-1, Pro Co Rat, and JHS Angry Charlie, etc. The Lion features an internal 18V charge pump converting a standard 9V power supply to 18V for maximum headroom and responsive touch dynamics.

- 100% All Analog Signal Path
- Full MIDI Control Over Every Knob, Switch, Feature, etc.
- Internal 18V Charge Pump for Maximum Headroom & Responsive Touch Dynamics
- 3 Selectable Distortion Circuits
- 3 Selectable Presets (knobs not active in preset mode)
- 100 On-Board Presets w/ the Use of a MIDI Controller
- Any Circuit Can Be Saved to Any Preset Location
- Live Mode (knobs always active)
- Preset Mode (knobs inactive)
- Quick access between Live Mode & Presets
- Multi-Colored LED's Showing the Status of Each Preset & Algorithm
- Double Tap the Preset Switch for an Instant Lead Boost
- Soft Click Bypass Switches
- Power via 9v (Negative Tip) DC Power Supply (power supply not included)
    - *Requires 200ma or larger power supply (anything less will result in performance issues)

- Dimensions L x W x H - 4.7 in x 3.7 in. x 1.66 in. (119 mm x 94 mm x 42 mm)

Overview

The Distortion Circuits

The Lion has three different circuits which offer different levels of compression and clarity. By default the Lion loads up with symmetrical silicone diodes which offers the most amount of compression. Typically used for heavy, thick chording, or nice saturated lead lines. Then we offer asymmetrical clipping with silicone diodes, this offers a slightly less compressed sound for a more open feel which usually works great for rhythm chords or more open sounding lead lines. The last option is a pair of red LED's, these offer the least amount of compression and the most headroom giving your guitar a very open feel. Red LED's will give you a more vintage Marshall sound and/or that "classic distortion sound".

Each circuit offers varying amounts of headroom, so typically when switching between these circuits your output volume will jump around quite a bit. At JET Pedals, we've added our volume leveling technology (VLT) to each circuit so you don't experience any jumps in volume when switching between circuits. This allows you to really feel the difference between the various circuit types, rather than simply hearing a perceived difference with volume jumps.

Overview

The Tone Stack

The tone stack of the Lion offers complete flexibility for maximum tone shaping. With both a low cut and high cut knob, you can either create complex fat rhythm tones, searing bright lead tones, or even cut both low and high frequencies to create a pseudo mid hump for cutting through the mix.

*** The low cut on the Lion is unlike traditional low cut knobs where they remove lows from the signal path post distortion. The Lion has the low cut positioned in the feedback loop of the opamp, which acts like the "sag" on tube amplifiers. With the low cut knob turned counter clockwise you will notice a more "spongy" feel to the distortion which can more compressed. With the low cut knob turned clockwise you will notice more "tightness" to the feel of the the distortion which can be less compressed.

Lead Boost

The Lion has a hidden Lead Boost feature, this can be useful for adding just a touch of output volume or adding a significant amount of output volume for lead lines or solos (will not affect your gain/breakup).

Double tap the Preset switch to auto engage the Lead Boost, once engaged the Preset LED will begin to flash indicating the Lead Boost is engaged. To exit the Lead Boost, simply press the Preset Switch.

The volume of the Lead Boost is user definable and can be changed/stored in permanent memory via the configuration menu at startup, see "Using the Pedal" for more info.

Operating your Lion Distortion

How to use the Lion Distortion

Using the Pedal

Volume Knob

Used to set the overall output volume of the Lion.

Gain Knob

Used to set the amount of gain/breakup of the Lion.

Low Cut Knob

Used to add or remove Low frequencies from the Lion.

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High Cut Knob

The high cut circuit is post gain which allows you to really fine tune the overall presence of your signal. Turned counter clockwise lets more high frequencies through while turning clockwise will remove highs from your signal path.

Lead Boost

Double tap the Preset switch to auto engage the Lead Boost, once engaged the Preset LED will begin to flash indicating the Lead Boost is engaged. To exit the Lead Boost, simply press the Preset Switch.

The volume of the Lead Boost is user definable and can be changed/stored in permanent memory via the configuration menu at startup. The Lead Boost can be adjusted from 1 thru 4, by default it is set to 1 from the factory. This can be changed upon powering up the pedal. After applying power to the Lion, hold down the Bypass switch while the pedal is in startup mode (Volume & High Cut knobs are white and the Bypass and Preset LED's are flashing). While continuing to hold down on the Bypass switch, the Preset LED will flash the number of times equivalent to the Lead Boost (set to 1 from the factory) and then will have a 2 second pause before flashing again. Simply press the Preset switch to increment the Lead Boost by 1, press as many times necessary to change to the desired setting. Once you've reached number 4 the next press will start over again at number 1. Once you have the right number selected, just release the Bypass switch to save this setting into

permanent memory.

The Workflow

The workflow of the Lion is similar to our Revelation Reverb, you have a "Live" mode and a "Preset" mode. When you press the Bypass switch, you will be in "Live" mode, the knobs will all be active and you can adjust to your desired sound. Pressing the Preset switch will jump into "Preset" mode, when here you immediately jump to the cue'd up preset and the knobs now become inactive. Pressing the "Preset" switch again will disengage the "Preset" mode and you immediately jump back to "Live" mode.

Just like our super popular Revelation Reverb, the Volume knob and the High Cut knob are illuminated with multi-colored LED's to indicate the status of which preset is cue'd up as well as which circuit the "Live" mode is in. To switch between circuits, simply do a long press (press and hold for at least ½ of a second) of the Bypass switch. Upon releasing the switch the LED on the High Cut knob will change colors indicating that you've changed circuits. To switch between presets, and/or cue up your desired preset while in "Live" mode, simply do a long press of the Preset switch. Upon releasing the switch the LED on the Volume knob will change colors indicating that you've either jumped to the next preset (while in "Preset" mode) or have cue'd up the next preset while in "Live" mode.

The colors of each knob are as follows:

- Circuit / Mid Boost Knob LED
  - Cyan - symmetrical quad silicone diodes
  - White - symmetrical dual silicone diodes
  - Yellow - clipping diodes removed from bottom half of sign wave
- Preset / Volume Knob LED
  - UV (purple) - preset #0
  - Red - preset #1
  - Green - preset #2

Using the Soft-Click Switches

Our soft click Bypass and Preset switches are smart switches which have several different timed based functions to control various features of the pedal. Please note the following time based functions:

- To switch circuits on the fly, press and hold the Bypass switch for at least ½ of a second and upon releasing the switch you will cycle through to the next circuit. Once you've reached the end, the next long press will cycle back to the first circuit.
- To switch presets on the fly, press and hold the Preset switch for at least ½ of a second and upon releasing the Preset switch you will cycle through to the next preset, once you've reached the end, the next long press will cycle back to the first preset. You can cycle through your presets in any state that the pedal is in (off, on, or in preset mode).

- To enter "Preset Save Mode", press and hold both the Bypass and Preset switch until the Bypass LED will begin to flash, confirming you are in "Preset Save Mode".
  - A short press of the Bypass switch will cycle through the circuits
  - A short press of the Preset switch will through where to store the preset
  - Once you've selected the right circuit and preset location, simply set the knobs to your desired positions and do a long press of the Preset switch. Once releasing the switch, the Preset LED will flash rapidly letting you know you've just saved that preset. Repeat as necessary to save your other presets
  - To exit "Preset Save Mode", press and hold the Bypass switch for longer than 2 seconds and upon releasing the Bypass switch you will exit the "Preset Save Mode"
- To engage the Lead Boost, simply do a double press of the Preset switch.
  - The Lead Boost is adjustable from 1 to 4 and is set from the factory at 1. To change the Boost level follow the steps below.
  - After applying power to the Lion, hold down the Bypass switch while the pedal is in startup mode (Volume & High Cut knobs are white and the Bypass and Preset LED's are flashing). While continuing to hold down on the Bypass switch, the Preset LED will flash the number of times equivalent to the Lead Boost level (set to 1 from the factory) and then will have a 2 second pause before flashing again. Simply press the Preset switch to increment the Lead Boost level by 1, press as many times necessary to change to the correct number. The numbers available on the Lion are 1 thru 4, once you've reached number 4 the next press will start over again at 1. Once you have the right number selected, just release the Bypass switch to save this setting into permanent memory.

Saving Presets

To enter "Preset Save Mode", press and hold both the Bypass and Preset switch until the Bypass LED will begin to flash, confirming you are in "Preset Save Mode".

- A short press of the Bypass switch will cycle through the circuits
- A short press of the Preset switch will cycle through where to store the preset
- Once you've selected the right circuit and preset location, simply set the knobs to your desired positions and do a long press of the Preset switch. Once releasing the switch, the Preset LED will flash rapidly letting you know you've just saved that preset. Repeat as necessary to save your other presets
- To exit "Preset Save Mode", press and hold the Bypass switch for longer than 2 seconds and upon releasing the Bypass switch you will exit the "Preset Save Mode"

MIDI Features and Controls

Library of MIDI commands and how to program your Lion Distortion

How to Connect

Midi communication to the Lion conforms to the specification for TRS to Midi adapters issued by the Midi Association. So what does this mean for me? In order to communicate via Midi you will need either a 5 pin to 1/4" TRS adapter cable that is wired to the TRS specification (link to a compatible cable found here) or if you wish to make your own patch cables, a link to the wiring diagram and the midi specification can be found here. You can also use a midi box that converts 5 pin Midi to multiple TRS patch cable connections and will need to conform to the TRS specification (currently only the Midi Box 4 by Disaster Area Designs), or a compatible Midi controller with TRS midi output's like the Futurist by Matthews Effects or various controllers by Disaster Area Designs and MorningStar Engineering.

Changing the MIDI Channel

From the factory the Lion is set to receive Midi messages on Midi channel 1, however this can be changed upon powering up the pedal. After applying power to the Lion, hold down the Preset switch while the pedal is in startup mode (Volume & High Cut knobs are white and the Bypass and Preset LED's are flashing). While continuing to hold down on the Preset switch, the Bypass LED will flash the number of times equivalent to the Midi channel (set to 1 from the factory) and then will have a 2 second pause before flashing again. Simply press the Bypass switch to increment the Midi channel by 1, press as many times necessary to change to the correct Midi number. The numbers available on the Lion are channels 1 thru 16, once you've reached number 16 the next press will start over again at number 1. Once you have the right number selected, just release the Preset switch to save this setting into permanent memory.

Tip: MIDI channel setup uses the Preset switch (hold) and the Bypass LED (blinks 1–16). Lead Boost level setup is a different menu — it uses the Bypass switch (hold) and the Preset LED (blinks 1–4). If the value wraps back to 1 after 4, you’re in Lead Boost, not MIDI channel. When you release Preset to save the channel, make sure you’re not also holding Bypass, or you may enter the Lead Boost menu right after saving.

Saving Presets via MIDI

You have two options for creating presets. The first option is to use a "smart" midi controller that can send multiple simultaneous midi messages. Just send individual CC messages to turn the Bypass switch on, select the algorithm, and set the values for each knob.

The second option is to use our revolutionary CC Snapshot feature. While in Live Mode, select your desired algorithm and then set all of the knobs to their desired positions. From there just send midi CC #28 with any Value from 3 thru 124. The pedal will then take a snapshot of its algorithm and knob positions, after that the knobs will flash green letting you know the preset has been saved into permanent memory. To recall this preset, just send a PC message with the same number used for the Value when sending CC #28.

Example: send CC #28 Value 10 to save a preset in the 10th slot. Send PC #10 to recall the new preset.

The Lion can save 100 onboard presets (0 thru 99).

Program Change Messages

Receiving a Program Change on the Lion’s MIDI channel always turns the pedal on and loads that preset. A PC does not turn the pedal off. To turn Bypass off over MIDI, send CC #23 with a value of 0–63 (see Control Change Messages). If a MIDI controller “preset” or bank change turns the Lion on unexpectedly, check whether that slot is sending a Program Change even when no CC messages are listed.

- PC #0 - Recalls the first preset (UV)
- PC #1 - Recalls the second preset (Red)
- PC #2 - Recalls the third preset (Green)
- PC #3 - 124 Recalls the preset created by CC Snapshot (Blue)
    - In this mode all of the LED's will be blue and the knobs will be active in case you need to make changes on the fly. Since every preset 3-124 will be the same color, it may be hard to remember what's been saved to each preset location. No worries, if you move the knobs away from their original position, the color of the LED's will change and when moved back to the saved preset location the LED's light up blue again. For the Gain & Low Cut knobs (that don't have an illuminated knob) the Preset and Bypass LED's will flash when moved away from the saved position and return to full solid when you navigate back to the saved preset location.

Control Change Messages

Receiving CC messages will control the individual controls, knobs, and switches of the Lion

- CC #19 with any value of 1 thru 8 controls the Volume knob. 1 is the equivalent of having the knob turned completely counter-clockwise and 8 is like having the knob turned completely clockwise.
- CC #20 with any value of 1 thru 8 controls the Gain knob. 1 is the equivalent of having the knob turned completely counter-clockwise and 8 is like having the knob turned completely clockwise.
- CC #21 with any value of 1 thru 8 controls the Low Cut knob
- CC #22 with any value of 1 thru 8 controls the High Cut knob
- CC #23
    - Any value between 0 & 63 turns the Bypass switch off
    - Any value between 64 & 127 turns the Bypass switch on

- CC #24
    - Any value between 0 & 63 turns the Preset switch off
    - Any value between 64 & 127 turns the Preset switch on

- CC #25 any value between 0 & 127 increments the Preset number
- CC #26 any value between 0 & 127 decrements the Preset number
- CC #27
    - Any value between 0 & 42 activates the Cyan circuit
    - Any value between 43 & 85 activates the White circuit
    - Any value between 86 & 127 activates the Yellow circuit

- CC #28 any value between 3 & 124 activates CC Snapshot mode
    - This takes a snapshot of your current settings and stores it permanent memory at the appropriate preset location. An example would be to send CC #28 Value 3, this stores a preset in the 3rd slot and can be recalled anytime by sending PC #3

- CC #29
    - Any value between 0 & 63 turns off the Lead Boost
    - Any value between 64 & 127 turns on the Lead Boost
      (you can also exit the Lead Boost with the foot switches as well)

FAQ

Frequently asked questions

FAQ

How many presets can I save on the Pedal

The Lion can save up to 100 presets. The first three presets can be saved by using the buttons and knobs on the pedal. The remaining 97 presets can be saved using a MIDI controller.

FAQ

Is the Lion analog or digital?

Yes, it's both! Your complete signal path is 100% all analog, while behind the scenes there is a digital brain that handles presets and midi features.

FAQ

Why is the Low Cut knob not very responsive?

The low cut on the Lion is unlike traditional low cut knobs where they remove lows from the signal path post distortion. The Lion has the low cut positioned in the feedback loop of the opamp, which acts like the "sag" on tube amplifiers. With the low cut knob turned counter clockwise you will notice a more "spongy" feel to the distortion which can more compressed. With the low cut knob turned clockwise you will notice more "tightness" to the feel of the the distortion which can be less compressed.

FAQ

Why is my Lion not responding to MIDI messages?

Currently there are multiple types of wiring options for cables and connectors. We comply to the MIDI specifications for TRS standards, meaning the tip is active, the ring requires 5 volts and the sleeve is grounded. It is likely that the cable you're using does not meet these standards. Please contact us for recommendations on cables.

FAQ

Why is my Lion acting funny when I plug it in?

If your Lion is making a funny noise or the LEDs are flashing white, it is likely that your power supply isn't providing enough power. The Lamb requires at least 200ma to function properly. Please check your power supply and make sure you're not plugged into a 100ma port. Under powering your pedal for any period of time can damage the unit and will void your warranty.