ENFORCER
DYNAMIC SATURATOR

INSTRUCTION MANUAL

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We thank you for expressing your confidence by purchasing one of our sound processing units, namely Enforcer. This 2- channel high-quality saturation unit was designed with our experience of distortion capabilities and sonic sculpting for all types of users; producers, engineers and artists alike.

We hope you continue to enjoy using the Enforcer in your projects for now and for future.

Lab:One Recordings © 2019

Thanks to all of the Lab One Alpha Squad for all the testing, comments, suggestions and feedback, as well as rootling out the erroneous bugs (which should be totally eradicated)

Thanks to Propellerhead Software (for Reason, the SDK and the concept of the Re)

Presets designed by:

DEDICATIONS This Re is dedicated to all the Propellerhead Reason users & forum threaders, friends & colleagues we have spoken to over the years.

Fresha: Thanks goes out to my studio buddies; Dos aka Ocro, Dj EQ, for the support & feedback, shouts go out to all who know me. Also not forgetting my family for the support, and last but by no means least, my wife Alicia who still puts up with me 'being on the laptop' :D

Now let's get into the Enforcer….

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Introduction

Enforcer is classed as a Dynamic Saturation unit. What does this mean? Well, some saturators do one thing (and some can to that thing well) which is saturation.

Saturation is a phenomenon, (sound amplitude reaching the limit of a given device). You have tape saturation, transistor saturation, tube saturation, etc.
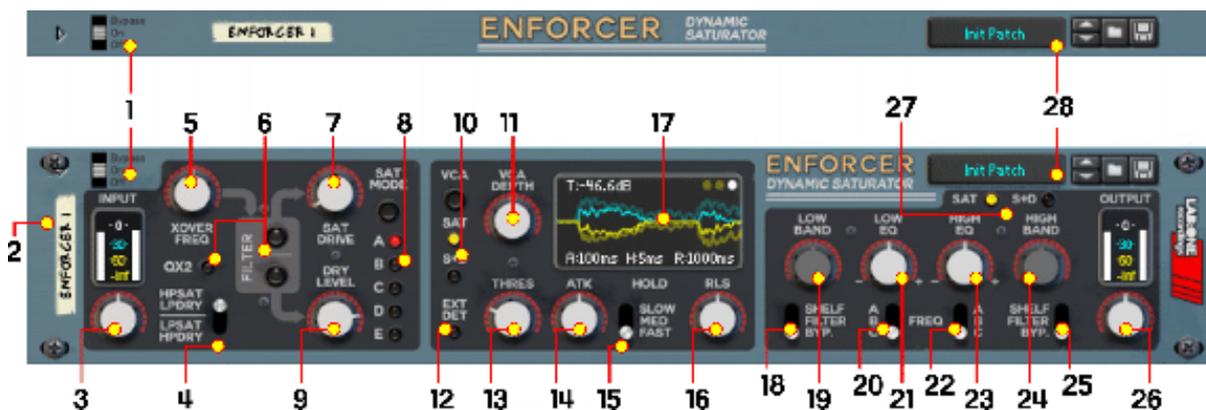
Enforcer takes saturation in a slightly different direction, by using a dynamically controlled gain determined by the input level and internal detector system to respond in a different way to 'vanilla' saturation and distortion. This can create an effect of excitement to audio, which can be used creatively.

Enforcer resided in the Propellerhead Reason Rack as an effect unit. Enforcer can be treated as a send effect or an insert effect. However, Enforcer's signal flow allows you to use Enforcer as an insert or a send effect even when created as an insert (explained later)

Enforcer features at a glance:

- +-18dB input and output trim control
- Dedicated input and output metering
- Dedicated filtering system pre-saturation & dry signal filtering (for parallel processing)
- 5 saturation models
- Envelope triggered VCA with attack, hold and release options
- External sidechain to detection circuit
- Attack and Release curve control
- VCA depth control (zero effect to full effect)
- Saturation or Saturation+Dry signal VCA level controlled
- Equalizer section with 3 low band frequency centres and 3 high band frequency centres (for filter shelf and EQ boost/attenuation)
- Filter mode for Low and High band (shelf / pass band / bypass)
- Equalization of saturated signal or saturated+dry signal
- Preset load and save
- Custom display with 3 modes (VCA response envelope, VCA follower scope, Stereo saturated + dry signal waveform response scope)
- Library of 'starter' presets

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Enforcer: Front views (folded, full)

1: Bypass toggle

2: Rack naming tape

3: Input trim control & meters
5: Pre-filter crossover
7: Saturation drive control
9: Dry level control

4: Pre-filter path
6: Filters with double resonance toggle
8: Saturation model selector & indicator

10: VCA signal mode control
12: External Sidechain LED
14: Attack control (0ms to 200ms)
16: Release control (0ms to 2sec)

11: VCA depth control
13: Envelope threshold (-60dB to 0dB)
15: Hold mode (5ms, 10ms, 50ms)
17: Multimode display

18: Low band mode toggle
20: Low band frequency centre*
22: High band frequency centre**
24: High band control (frequency, gain**)
26: Final output trim control & meters
28: Patch loader / saver

19: Low band control (frequency, gain*)
21: Low EQ gain control*
23: High EQ gain control**
25: High band mode toggle
27: EQ mode toggle (saturation only, total)

*= frequency centre affects the Low band shelf and Low EQ frequency point, predetermine internally. Low band filter is not affected by this control
**= frequency centre affects the High band shelf and Low EQ frequency point, predetermine internally. High band filter is not affected by this control

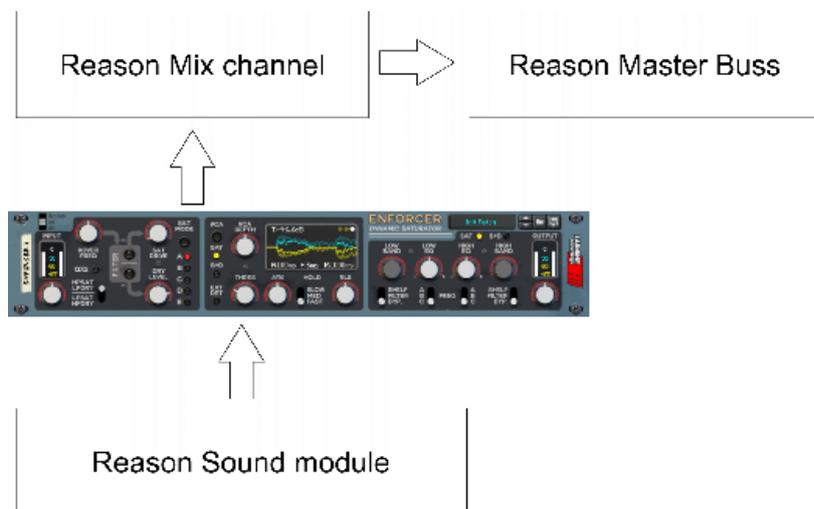Enforcer: Rear views (folded, full)

1: Rack naming tape
2: Audio connection sockets (inputs, outputs, sidechain; stereo)
3: CV input connections & trim controls
4: CV output connection

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Enforcer is designed to be a flexible device, allowing it to be used however you see best fit. Here is an example of how Enforcer may be commonly used

In the above setup, Enforcer would technically be an insert effect. We say technically because the signal flow comes in and passes out again. However, Enforcer has the addition of a dry level control, as well as having a saturated signal mixed with the dry, making this a parallel processing device (much alike a send-and-return style of unit).

If you wanted to use the effect as a send device, then ensure the DRY LEVEL control is set down to -infdB (silent) so you would only hear the effected signal pass through Enforcer.

Enforcer Signal Flow:
Enforcer starts with the audio input socket from another device / mix channel / audio channel within Reason. This audio signal is then fed into the filter splitter function. From this point, we will call the signal that is planned to be saturated the 'saturation source'.

You can decide if you want to filter both saturation source and dry signal or leave the full audio range intact (bypassing the filter). You also have the option to decide the filter mode (high pass filter the saturation source and low pass the dry signal, or low pass the saturation source and high pass the dry signal). The filter only comes into effect when the dedicated filter button is activated. There are two additional controls that affect the way the filters behave. There is a crossover control that allows the frequency centre of each filter to be adjusted together, so there is a consistent filter matching. There is a QX2 button which allows you to double the resonance (create filter spikes) which might be more desired if you want to pronounce the filtered signal before saturating (or evne on the dry signal if filtered).

Moving onto the saturation selection, you can pick one of 5 models, which affect audio in different ways and can cater for various different sound sources (stringed instruments like guitars, or percussive sounds like drums, or even vocals). Along with the saturation model there is a saturation drive control. This sets up the amount of signal is pushed into the selected circuit. The higher the drive, the more the signal could distort/waveshape. Using the input trim control plus the filter controls (if filter is active) also add to the saturation circuit so can help shape the tone and sound of the unit, increasing the flexibility. If the drive is too much you can turn down the input trim or turn down the drive. Alternatively, you could decrease the level of signal prior to Enforcer for another variable in the signal path.

The envelope detection circuit reads the dry audio signal / side chain signal and converts that into a voltage follower, further adjusted by the VCA controls on Enforcer. Threshold is the setting that 'trips' the detection circuit. Once audio passes over the threshold, the detector begins its process and constantly checks the audio input. If the audio has decreased below the threshold but the VCA envelope is in mid-flow, the circuit goes from attack stage to hold stage and once passed the hold stage moves on to the release stage, eventually returning to zero volts if the threshold has not been surpassed.

Enforcer's envelope can be adjusted via the Attack, Hold, Release and VCA depth controls. The VCA mode decides on what signal the VCA envelope will affect; either the saturated signal only, or both the saturated + dry signal (good for gated style effects).

The main display allows the user to see 3 different views in relation to how Enforcer is working. Clicking one of the three dots on the panel switches the views: view 1 = Envelope shape, view 2 = Envelope response, view 3 = audio signal response.

View 1: In this view you can see the envelope shape in accordance to the attack, hold, release and VCA depth controls. VCA depth controls the level of the affect (from zero to the set %). Attack, Hold and Release affect each section of the envelope. Additionally, you can adjust the curve response of the attack and release section by clicking and dragging up/down on the display, to allow for logarithmic style of envelope. Default envelope shaping in linear, and to reset the curve back to linear simply CTRL-click the section and it will return to a linear line.

View 2: In this view Enforcer will show you the shape of the VCA in relation to the set controls also the audio triggering signal. This can be a handy view to display how the volume is riding the incoming signal and affecting the final signal. This is a live view, so any changes will be shown in the display. The envelope view at the far right is the actual level the VCA was working to, so as the envelope scrolls to the left you get a 'history' response of the signal and envelope.

View 3: This is a final view of how the audio signals themselves are portrayed at the audio outputs. The top half of the display represents the left channel while the bottom half of the display represents the right channel. The darker colours represent the dry signal while the brighter colours represent the saturated signals. This in turn allows you to see the comparable signal information of both dry and saturated signals at the same time in real time and looks smart too!

The EQ section allows further processing of the signals, either saturated only or both saturated and dry signals as one. This lets you fine tune the final tone if desired, or you can 'clean up' the signal before it hits the final outputs. Any EQ adjustments can also be seen in view 3 (when view 3 is active).

CV inputs and output

Enforcer allows CV socket inputs to affect various controls across Enforcer's panel. Additionally, Enforcer has a CV output socket, purposely giving you the option to send the envelope signal triggered within Enforcer as a CV source to affect other devices. Simply connect CV cables from other devices to Enforcer for a true modular experience.

Loading and Saving presets

Enforcer allows you to save settings as well as load them up via the patch browser built into the front panel. Simply browse using the 'patch open' button and load up the patch of your choice. Please note that if you are CV wiring then you must use a Combinator as your 'shell' as the Combinator will keep your internal CV wiring intact. Any devices connected to / from Enforcer outside of a combinator would lose that connection, but you would still be able to save your patch (it would simply be a 'CV cableless' preset).

If you have any other questions or enquiries in relation to this or any other Lab One Recordings product then please contact us via http://lab-one-recordings.co.uk or email us at info@lab-one-recordings.co.uk

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MIDI listing & Remote control texts

MIDI CC	Control	Remote Name
[12]	Input level	Input level
[13]	Output level	Output level
[14]	Saturation Drive	Saturation Drive
[15]	Dry Level	Dry Level
[17]	Filter Crossover frequency	Crossover Frequency
[34]	Saturation Mode (1/2/3/4/5)	Sat Mode
[36]	Split Filter mode	Split Mode
[39]	Split filter Resonance (normal, double)	Split Filter Resonance
[37]	Pre-Saturation filter toggle	Saturation Filter
[40]	Dry filter toggle	Dry Filter
[16]	VCA Depth	VCA Depth
[18]	Threshold	Threshold
[19]	Attack	Attack
[20]	Hold	Hold
[21]	Release	Release
[35]	VCA Mode (Sat, Sat + Dry)	VCA Mode
[22]	Low Shelf Gain	Low Shelf
[23]	Low Pass Filter	Low Frequency
[24]	Low EQ Gain	Low EQ Gain
[25]	High Shelf Gain	High Shelf
[26]	High Pass Filter	High Frequency
[27]	High EQ Gain	High EQ Gain
[28]	Low Cut mode (Shelf/Cut/Bypass)	Low Cut Mode
[29]	Low Frequency Band Mode (A/B/C)	Low Band Mode
[30]	High Cut mode (Shelf/Cut/Bypass)	High Cut Mode
[31]	High Frequency Band Mode (A/B/C)	Low Band Mode
[33]	EQ Mode (Sat, Sat+Dry)	EQ Mode

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