

# RP DISTORT



## User Guide

Powered by RPCX

## **Patch and Global Section**

At the top of the RP DISTORT- RE window you find the patch control section, modulation and global controls.

### **Patch Controls**

RP DISTORT-RE uses the standard Reason patch controls. Clicking on the patch menu, brings up a list of patches in the current folder and clicking on the up / down buttons next to the menu allows you to scroll through these patches.

The Patch Browser button will bring up the patch browser, allow you to load in patches from other bank folders.

The Save Patch button, allows you to save the current patch.

### **Mod Wheel**

This simulates mod wheel input into RP DISTORT-RE

### **Bypass**

The bypass switch turns the RP DISTORT-RE effect on and off.

### **DC Filter**

Some of the distortion types in RP DISTORT-RE add a DC offset to the signal (such as the Rectification effect). We have added a DC filter after the distortion to remove this offset. The DC Filter is on by default, but you can turn it off here if you want to.

### **Mix**

The mix control sets the balance between RP DISTORT-RE's wet output and the original dry signal. The range is from 100% dry (only the original signal) to 100% wet (only the processed signal).

### **Path Menu**

The path menu gives you access to the way in which the RP DISTORT-RE modules are interconnected.

## Distortion Unit

The Distortion Unit is the heart of RP DISTORT-RE. It consists by the EQ unit and then the Noise-Gate unit.

### Distort Unit



RP DISTORT-RE offers 22 different distortion types allowing for a wide sonic range of distortion effects. Every distortion type gives access to a different set of controls. The controls are listed for each of the effect types in this section. Let's have a look first at the controls available for all effect types. They are listed in the following table:

|                  |  |
|------------------|--|
| <i>On/Off</i>    | The "Distort" button turns the distortion effect (Distort Unit) on and off   |
| <i>Volume</i>    | Total volume of the distortion   |
| <i>Type</i>      | The typed drop down menu selects the type of distortion being applied.   |
| <i>Pre</i>       | Pre-distortion volume boost. Higher settings will drive the distortion circuit harder  |
| <i>Normalize</i> | Determines the amount with which the distortion output volume is normalized relative to the input volume. At 100% the output volume is of similar to that of the input signal. |

The distortion types use various techniques to create the distorted sound. In general all distortion types add harmonics (overtones) to the original signal. The level, odd / even balance and spacing of the harmonics, determine the character of the distorted signal.

## Distortion Types and Controls

### Amp Simulator

The Amp Simulator effect imitates a complete (guitar) amplifier. When driven hard, each amplifier type produces a style of distortion that is characteristic for its model

|                |   |
|----------------|---|
| <i>Type</i>    | Type of amplifier simulation. Settings are:- None, Fender, Marshall & Off Axis. |
| <i>Distort</i> | Amount of distortion added to the sound.  |

### Cabinet Simulator

The Cabinet Simulator effect imitates a guitar cabinet (amplifier and speaker). When driven hard, each cabinet produces a signature sound, associated with its brand and model.

|                |   |
|----------------|---|
| <i>Type</i>    | Type of cabinet simulation. Settings are:- None, 4x10" guitar speakers, 4x12" guitar speakers, Bass speaker, Combo speaker and Radio speaker. |
| <i>Distort</i> | Amount of distortion added to the sound.  |

### Clipper

The clipper distortion literally chops off the tops of the peaks in the audio waveform. The RP DISTORT-RE clipper allows for separate settings for the negative and positive part of the waveform.

|                 |   |
|-----------------|---|
| <i>Negative</i> | The clipping level for the negative signal. From 0% (no clipping) to 100% (maximum clipping). |
| <i>Positive</i> | The clipping level for positive signal. From 0% (no clipping) to 100% (maximum clipping).     |
| <i>Amount</i>   | The amount of clipping from 0% (no clipping) to 100% (fully clipped)                          |

### Cos

Cosine distortion effect.

|                  |                                 |
|------------------|---------------------------------|
| <i>Frequency</i> | Frequency of the cosine effect. |
| <i>Amount</i>    | Amount of cosine distortion     |

### Cross 1

Cross distortion type 1.

|               |                               |
|---------------|-------------------------------|
| <i>Cross</i>  | Position for cross distortion |
| <i>Amount</i> | Amount of cross distortion    |

## Cross 2

Cross distortion type 2.

|                 |  |
|-----------------|--|
| <i>Negative</i> | Cross distortion position for the negative signal  |
| <i>Positive</i> | Cross distortion position for the positive signal. |
| <i>Amount</i>   | Amount of cross distortion.                        |

## FoldOver

Fold-over distortion, this amplifies and then 'folds over' the sound.

|                  |  |
|------------------|--|
| <i>Frequency</i> | Frequency of the fold-over distortion. |
| <i>Amount</i>    | Amount of fold-over distortion.        |

## Fuzz

Fuzz-box distortion is based on the effect of overdriven transistors in an electronic circuit.

|                  |   |
|------------------|---|
| <i>Frequency</i> | Frequency of the fuzz-distortion effect |
| <i>Amount</i>    | Amount of fuzz distortion               |

## Gapper

Gapper distortion,

|                  |   |
|------------------|---|
| <i>Frequency</i> | Frequency of the gapper distortion effect |
| <i>Amount</i>    | Amount of fuzz distortion                 |

## Hard-limiter

The hard limiter limits output which is to above a pre-set level (limit) and subsequently boosts the signal.

|               |   |
|---------------|---|
| <i>Limit</i>  | The clipping level for the signal. From 0% (no limiting) to 100% (maximum limiter). |
| <i>Amount</i> | The amount of post-limiting boosting.   |

## Low-Fi

The Low-Fi effect, this reduces the precision with which the signal is being reproduced. It does this by reducing the sample rate, the bit rate and adds noise to the signal.

|                    |                                     |
|--------------------|-------------------------------------|
| <i>Bits</i>        | Bit level of the signal.            |
| <i>Sample Rate</i> | Sample rate of the signal.          |
| <i>Noise</i>       | Amount of noise added to the signal |

## OverDrive

The overdrive effect is a classic style of distortion whereby electronic components were driven too hard by the input signal.

|               |                                 |
|---------------|---------------------------------|
| <i>Drive</i>  | Drive for the over-drive effect |
| <i>Amount</i> | Over-drive mixing amount..      |

## Octave 1

Octave effect which shifts the sound up an octave,

|                 |                                 |
|-----------------|---------------------------------|
| <i>Negative</i> | Mixing for the negative signal  |
| <i>Positive</i> | Mixing for the positive signal. |

## Octave 2

Octave effect type 2,

|                  |                                 |
|------------------|---------------------------------|
| <i>Frequency</i> | Frequency of the octave effect. |
| <i>Amount</i>    | Amount of octave effect.        |

## Power

Power wave-shaping effect.

|               |                            |
|---------------|----------------------------|
| <i>Drive</i>  | Drive for the power effect |
| <i>Amount</i> | Power mixing amount.       |

## Rectify

Rectify works by inverting (flipping-over) the negative part of the audio waveform so that it becomes a positive signal.

|                      |   |
|----------------------|---|
| <i>Rectification</i> | Rectification of the negative signal, from -100% (no rectification), 0% (half rectification) to 100% (full rectification) |
| <i>Amount</i>        | Rectification mixing amount.  |

## Ring Modulation

The ring modulates (multiplies) the input signal with an RP DISTORT-RE generated oscillator signal. It typically creates metallic non-tonal overtones.

|                  |  |
|------------------|--|
| <i>Type</i>      | Sets the waveform of the RP DISTORT-RE oscillator. Choose between Sine, Saw, Square and Triangle |
| <i>Frequency</i> | Sets the oscillator frequency.   |
| <i>Amount</i>    | Sets the ring modulation amount.   |

### Saturate

The saturation effect is a subtle type of distortion that is associated with a warm, analogue sound. It is derived from the time when recordings were made on magnetic tape. The tape could only hold so much of a magnetic load (which represents the audio signal). As higher levels of audio required a higher magnetic load, the tape could get saturated and the magnetic field did not accurately reflect the audio signal anymore. The distortion this generated is reproduced here.

|                   |                          |
|-------------------|--------------------------|
| <i>Saturation</i> | Saturation level         |
| <i>Amount</i>     | Saturation mixing amount |

### SoftLimit

The soft limiter is a gentler version of the hard limiter effect.

|               |                     |
|---------------|---------------------|
| <i>Amount</i> | Soft-limiter amount |
|---------------|---------------------|

### Squarify

Squares the signal (turns it to a square wave), which generates a lot of new overtones (harmonics). The low-pass filter is there to bring those harmonics back under control.

|                 |   |
|-----------------|---|
| <i>Negative</i> | Amount the negative signal is turned to a square wave |
| <i>Positive</i> | Amount the positive signal is turned to a square wave |
| <i>Filter</i>   | Amount this square wave is lowpass filtered.          |

### Transient

The transient type distortion affects the transients of the signal. The transients are the impulse-like (peak) sections at the beginning of sound or waveform.

|               |                             |
|---------------|-----------------------------|
| <i>Range</i>  | Transient range             |
| <i>Amount</i> | Transient distortion amount |

### Tube Simulator

The classic tube distortion is an effect that combines saturation, limiting, rectifying and a band-pass filter of the input.

|                 |  |
|-----------------|--|
| <i>Limit</i>    | Hard limiter threshold.  |
| <i>Rect</i>     | Amount of rectification, from -100% (no change), 0% (half) to 100% (full). |
| <i>Saturate</i> | Amount of saturation..   |
| <i>Tone</i>     | Frequency of the band pass filter.   |
| <i>Emphasis</i> | Bandwidth of the band pass filter.   |

## EQ Unit



The EQ Unit is a four (4) Band Equalizer. The frequency bands are fixed at 125 Hz, 500 Hz, 2 kHz and 8 kHz. Each frequency band can be boosted or attenuated independently.

|                 |  |
|-----------------|--|
| <i>On / Off</i> | The "EQ" button turns the EQ effect on and off |
| <i>Low</i>      | 125 Hz volume                                  |
| <i>Mid 1</i>    | 500 Hz volume                                  |
| <i>Mid 2</i>    | 2 kHz volume                                   |
| <i>High</i>     | 8 kHz volume                                   |

## Noise-Gate Unit



The noise-gate is an audio effect that removes any signal ('gates') that is below a threshold volume. It is typically used to keep noisy effects under control when no or a very low input signal is present. Distortion effects work with potentially very high internal amplification levels, which may lead to higher noise levels in the output stage.



|                  |  |
|------------------|--|
| <i>On / Off</i>  | The "Gate" button turns the noise-gate effect on and off   |
| <i>Threshold</i> | This sets the threshold (signal level) below which the noise-gate starts to work.                            |
| <i>Attack</i>    | This sets how long the noise-gate takes to reduce the volume to zero after the noise-gate is triggered.      |
| <i>Hold</i>      | This sets how long the input volume has to be below the threshold volume before the noise-gate is triggered. |
| <i>Release</i>   | This sets how fast the noise-gate returns to normal after the input volume passes the threshold level again. |

## Filter, Compressor & Widener



### Filter

RP-Distort RE has a low and a high pass filter. The filters are connected in series, where the low-pass filter feeds into high-pass filter

|                   |  |
|-------------------|--|
| <i>12 / 24 DB</i> | Selects between a slope of 12db/octave and a 24db/octave. The 24db slope filter works more rigorously and has a more pronounced character than the 12db one. |
| <i>Low</i>        | Filter frequency of the low pass filter  |
| <i>Low Q</i>      | <i>Resonance</i> of the low pass filter  |
| <i>High</i>       | Filer frequency of the high pass filter  |
| <i>High Q</i>     | <i>Resonance</i> of the high pass filter   |

## Compressor

The compressor is an audio effect that manages the dynamic range and response of a signal.

|           |   |
|-----------|---|
| Threshold | This sets the threshold at which the compressor starts to work.   |
| Ratio     | This sets the amount of dB reduction. So with a ratio setting of 1:2, and the signal exceeds the threshold by 4dB then it is reduced by $4\text{db}/2 = 2\text{db}$ . |
| Attack    | This sets how fast the compressor kicks in after the signal passes the threshold level.   |
| Release   | This sets how long the compressor takes to react to a reduction in volume where the signal falls below the threshold level again.                                     |
| Volume    | This sets the volume of the post-compression signal   |

## Widener

This effect widens the stereo sound. It creates a spatial effect that generates a stereo image with a mono signal as input.

|        |   |
|--------|---|
| Amount | Stereo widening amount  |
| Width  | Maximum spread (between left and right channels) of the stereo effect |
| Speed  | Speed at which the stereo widening amount is being modulated.         |

# Modulation



The modulation section gives you the opportunity to change RP DISTORT-RE parameters dynamically. For this purpose there are 4 independent LFOs and 4 freely configurable modulation slots at your disposal. There are two controls that affect all modulators simultaneously:

|               |   |
|---------------|---|
| <i>Bypass</i> | Bypasses all the modulation & LFO controls                                  |
| <i>Global</i> | Adjusts modulation and LFO amounts for all modulation paths simultaneously. |

## LFO

The LFO section sets up four modulation paths, one for each LFO.

|                    |  |
|--------------------|--|
| <i>Wave</i>        | Selects the LFO Waveform, there are 6 shapes to choose from: - Sine, Triangle, Saw Up / Down, Square and Sample and Hold   |
| <i>Free</i>        | This is an on/off switch. When off, Reason resets the LFO when it starts playing. When on, the LFO is free running and is never being reset.                     |
| <i>Speed</i>       | Sets the frequency or speed of the LFO waveform (“how fast the LFO is running”). If “Sync” is active, the LFO speed is synchronised to the Reason’s tempo.       |
| <i>Sync</i>        | This determines whether the LFO’s speed is synchronised to Reason’s tempo.   |
| <i>Human</i>       | The human control brings in slight variations (inaccuracies) to the LFO speed.   |
| <i>Shape</i>       | This controls the symmetry of the waveform, or how quickly the LFO waveform reaches its middle point. It can be used to alter the pulse width of the square LFO. |
| <i>Destination</i> | Sets the target parameter to be modulated by the LFO signal  |

## Mod

The modulator section allows you to configure RP-Distort RE's four modulator slots to set up 4 independent paths to dynamically alter RP-Distort RE's parameters.

|                    |  |
|--------------------|--|
| <i>Source</i>      | Selects the modulation source.   |
| <i>Destination</i> | Sets the target (RP DISTORT-RE parameter) for the modulation source    |
| <i>Amount</i>      | Sets the strength with which the source changes the modulation target. |

## Back Panel



Click on the Rob Papen logo to go to the RP DISTORT-RE back panel. You will find a number of inputs and outputs. The back panel also lists the program credits.

### **Input L/R**

The L/R stereo inputs are where you connect an audio signal to RP DISTORT-RE.

### **CV Input**

RP DISTORT-RE has four independent CV inputs, which can be used as modulation sources.

### **LFO Gate Input**

The four LFO Gate inputs are used to reset the LFOs 1 / 2 / 3 / 4.

### **Output L/R**

Here you grab RP DISTORT-RE's stereo output signal to connect to other Reason instruments and effects.

## CC Remote Names

| #  | Remote Name          |
|----|----------------------|
| 4  | Midi CC4             |
| 7  | Volume               |
| 8  | Mix                  |
| 14 | Distortion Pre-Boost |
| 15 | Distortion Normalize |
| 16 | Midi CC16            |
| 17 | Midi CC17            |
| 18 | Midi CC18            |
| 19 | Midi CC19            |
| 20 | Midi CC20            |
| 21 | Midi CC21            |
| 22 | Amp Distort          |
| 23 | Cab Distort          |
| 24 | Clipper Lower        |
| 25 | Clipper Upper        |
| 26 | Clipper Amount       |
| 27 | Cos Frequency        |
| 28 | Cos Amount           |
| 29 | Cross1 Cross         |
| 30 | Cross1 Amount        |
| 31 | Cross2 Lower         |
| 44 | Cross2 Upper         |
| 45 | Cross2 Amount        |
| 46 | Foldover Frequency   |
| 47 | Foldover Amount      |
| 48 | Fuzz Frequency       |
| 49 | Fuzz Amount          |
| 50 | Gapper Frequency     |
| 51 | Gapper Amount        |
| 52 | Hard-limiter Limit   |
| 53 | Hard-limiter Amount  |
| 54 | Low-FI Bits          |
| 55 | Low-FI S&H           |
| 56 | Low-FI Noise         |
| 57 | Low-FI Mix           |
| 58 | Octave1 Lower        |
| 59 | Octave1 Upper        |
| 60 | Octave2 Frequency    |
| 61 | Octave2 Amount       |
| 62 | Overdrive Drive      |
| 63 | Overdrive Amount     |

|     |                       |
|-----|-----------------------|
| 70  | Power Drive           |
| 71  | Power Amount          |
| 72  | Rectification Rectify |
| 73  | Rectification Amount  |
| 74  | Ring Mod Frequency    |
| 75  | Ring Mod Amount       |
| 76  | Saturation Drive      |
| 77  | Saturation Amount     |
| 78  | Softlimiter Amount    |
| 79  | Square Lower          |
| 80  | Square Upper          |
| 81  | Square Amount         |
| 82  | Transient Range       |
| 83  | Transient Amount      |
| 84  | Midi CC84             |
| 85  | Midi CC85             |
| 86  | Midi CC86             |
| 87  | Midi CC87             |
| 88  | Midi CC88             |
| 89  | Midi CC89             |
| 90  | Midi CC90             |
| 91  | Tube Limiter          |
| 92  | Tube Rectifier        |
| 93  | Tube Saturation       |
| 94  | Tube Tone             |
| 95  | Tube Emphasis         |
| 102 | Filter Low            |
| 103 | Filter Low Q          |
| 104 | Filter High           |
| 105 | Filter High Q         |
| 106 | Widen Amount          |
| 107 | Widen Speed           |
| 108 | Widen Width           |
| 109 | LFO 1 Amount          |
| 110 | LFO 1 Speed (ms)      |
| 111 | LFO 1 Speed (qb)      |
| 112 | LFO 2 Amount          |
| 113 | LFO 2 Speed (ms)      |
| 114 | LFO 2 Speed (qb)      |
| 115 | LFO 3 Amount          |
| 116 | LFO 3 Speed(ms)       |
| 117 | LFO 3 Speed (qb)      |
| 118 | LFO 4 Amount          |
| 119 | LFO 4 Speed (ms)      |



|     |                      |
|-----|----------------------|
| 128 | LFO 4 Speed (qb)     |
| 129 | Bypass               |
| 130 | Path                 |
| 131 | Global Mod           |
| 132 | Mod Bypass           |
| 133 | DC On                |
| 134 | Distortion On        |
| 135 | Distortion Type      |
| 136 | Amp Type             |
| 137 | Cab Type             |
| 138 | Ring Mod Wave        |
| 139 | EQ On                |
| 140 | EQ Low               |
| 141 | EQ Mid 1             |
| 142 | EQ Mid 2             |
| 143 | EQ High              |
| 144 | Noise Gate On        |
| 145 | Noise Gate Threshold |
| 146 | Noise Gate Attack    |
| 147 | Noise Gate Hold      |
| 148 | Noise Gate Release   |
| 149 | Filter On            |
| 150 | Filter Type          |
| 151 | Compressor On        |
| 152 | Compressor Limit     |
| 153 | Compressor Ratio     |
| 154 | Compressor Attack    |
| 155 | Compressor Decay     |
| 156 | Compressor Volume    |
| 157 | Widen On             |
| 158 | Mod 1 Amount         |
| 159 | Mod 2 Amount         |
| 160 | Mod 3 Amount         |
| 161 | Mod 4 Amount         |
| 162 | LFO 1 Wave           |
| 163 | LFO 1 Sync           |
| 164 | LFO 1 Humanization   |
| 165 | LFO 1 Shape          |
| 166 | LFO 1 Free           |
| 167 | LFO 2 Wave           |
| 168 | LFO 2 Sync           |
| 169 | LFO 2 Humanization   |
| 170 | LFO 2 Shape          |
| 171 | LFO 2 Free           |

|     |                    |
|-----|--------------------|
| 172 | LFO 3 Wave         |
| 173 | LFO 3 Sync         |
| 174 | LFO 3 Humanization |
| 175 | LFO 3 Shape        |
| 176 | LFO 3 Free         |
| 177 | LFO 4 Wave         |
| 178 | LFO 4 Sync         |
| 179 | LFO 4 Humanization |
| 180 | LFO 4 Shape        |
| 181 | LFO 4 Free         |

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