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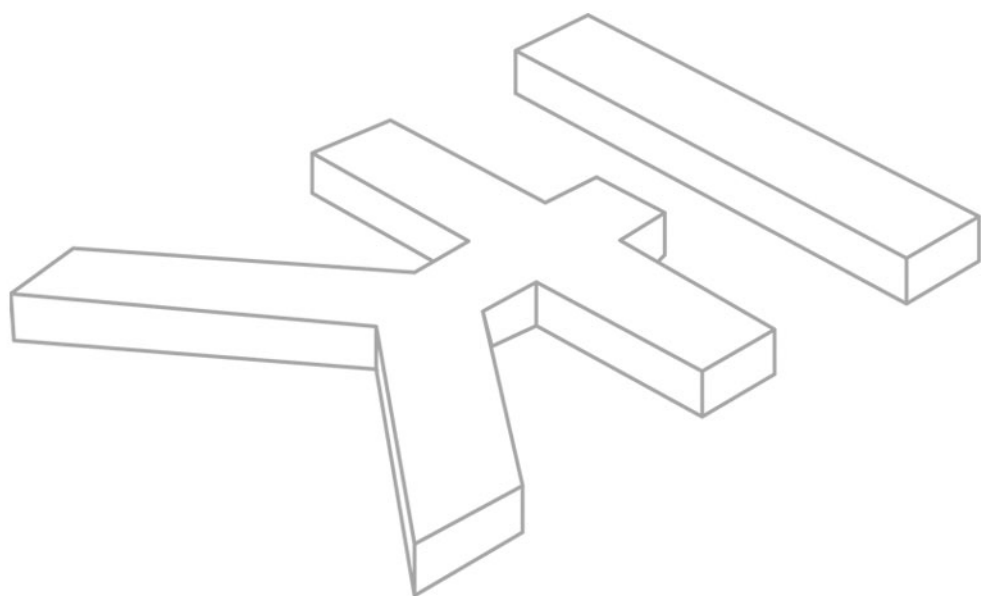
T-RackS®



Analog Modeled Mastering Plug-In

- State-Of-The-Art 6 Band Mastering EQ
- Tube Modeled Mastering Compressor
- Multiband Master Limiter
- Soft-Clipping Output Stage
- Complete Mastering Suite

User Manual



T-RackS[®]

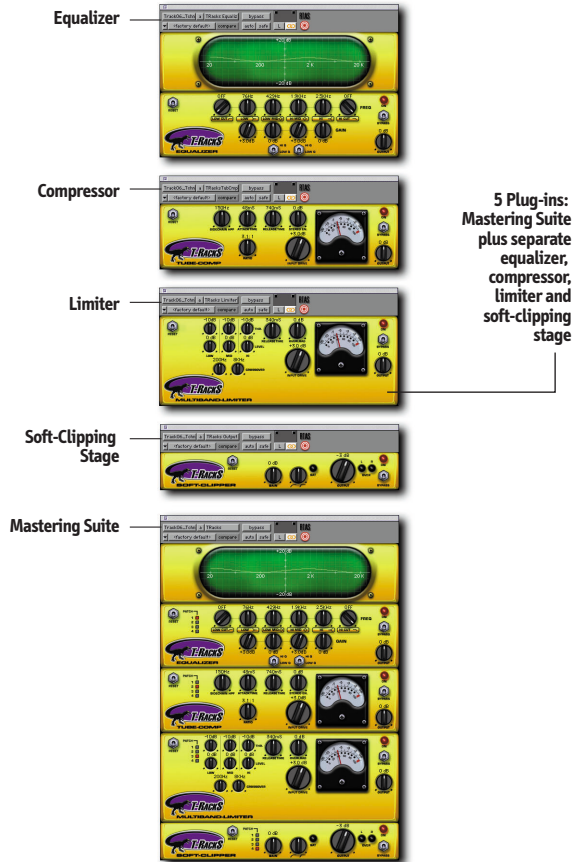
T-RackS

Analog Modeled Mastering Plug-In

User Manual

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Analog Modeled Mastering Plug-Ins

Mastering Suite



32 Bit floating point resolution

100 presets

State-of-the-Art 6-band Equalizer

Classic Stereo Tube Compressor

Multiband Stereo Limiter/Leveler

Soft-Clipping Stage

Award winning analog modeled sounds with true tube emulation

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Chapter 1 What is T-RackS® Plug-In

1.1 Description



fig. 1

T-RackS® (fig. 1) is a new type of real-time software sound processor that offers an amazing sound performance with a similar working environment to that of a high end analog mastering stations - right on your desktop. It comprises of a suite of 5 sound processors exclusively developed for mastering including:

- a state-of-the-art six band stereo parametric equalizer (fig. 2)
- a classic mastering tube stereo compressor/leveler (fig. 3)
- a multiband mastering stereo limiter (fig. 4)
- an adjustable soft-clipping output stage (fig. 5)
- a complete mastering suite including eq, compressor, limiter and output stage (fig. 1)

All the effects modules emulate classic analog sounds and have been specially engineered for working on final mixes, with all controls accurately designed for mastering, just like the highly acclaimed high-end vintage audio gear T-RackS®-24 is modelled after.

The working principles of T-RackS® algorithms are based on the circuit schematics of real analog hardware devices, and our proprietary filter design theory. We started looking at the schematics of some top-notch analog vintage circuits. A mathematical model of each circuit was studied and then converted into a DSP algorithm. In addition, we decided that T-RackS® should use floating point calculations for the most accurate analog signal simulation. These types of calculations allow a noise-free signal while emulating the non-linearities that affect signals in the analog domain.

Even though T-RackS® has been designed for mastering, its quality plug-in units can sound amazing on individual tracks too. We suggest using them on critical tracks like lead vocals, drums, bass, acoustic guitars.. and so on, every time you need that pristine, warm and open sound T-RackS® is renowned for.

1.2 What's new in T-RackS® Plug-In

Apart of the new availability of separate modules, the new T-RackS® Plug-In contains other major improvements, compared to the stand-alone version, including:

1) New full band sweepable mid bands on the Equalizer
Both the peaking filters can now cover the entire 20 – 20KHz audio spectrum.

2) Refined high-end response
The T-RackS® equalizer is now even more musical and transparent at the top end, the T-RackS® Eq has those characteristic smooth high ends, typical of acclaimed analog devices.



fig. 2

3) Sidechain HPF in the compressor signal detecting chain

This adds a high pass filter in the detector stage of the compressor. The detector stage is where the compressor analyzes the incoming signal and determines how gain reduction must be applied. This variable high pass filter prevents, when turned up, that "compression pumping", mainly caused by the programme's low end content. The further this knob is turned the softer and more inaudible the compression character will be. At the minimum or at very low settings the compression will be much more aggressive and noticeable.

Use lower settings when you want to "hear" the compression effect and use higher values for a gentle compression, as you may want in acoustic mixes.



fig. 3

4) Individual limiter bands controls

Now all the three limiter bands low, mid, and high are individually adjustable for threshold and level. This allows the user, for example, to limit the program low end without applying unwanted compression to the midrange.



fig. 4

5) Adjustable multiband limiter crossover points

Now the user can modify the two split points of the bands.



fig. 5

6) High precision calibration of the limiter and clipper output

If the output knob of the limiter is at 0 dB (default) the output of the limiter will never go beyond -0.05 dBfs. You can just squeeze the drive knob until you hear too much distortion or limiting and can be sure that the output is at the industry mastering standard level of -0.05 dBfs, without overs. The same applies for the Soft clipper.

T-RackS[®]

Chapter 2 Mastering with T-RackS®

This section will guide you through the basics of using T-RackS®.

2.1 Introduction

Mastering is the final stage of processing made on a stereo mix before going to press on audio CDs, movie soundtracks, multimedia soundtracks, and so on. Its purpose is to obtain the maximum possible sound quality from the original mix by "sweetening" it with equalization, compression and limiting.

Furthermore, mastering is essential to balance and create a pleasing continuity from one track to the next. For a final CD master to be perfect, it **MUST** be coherent, with equal loudness, image and tone contour from track to track. The only way to accomplish this is through mastering.

IMPORTANT: special care must be taken to have the most accurate speaker system possible. You have to be absolutely sure of what you're hearing when you're mastering your tracks. The accuracy of audio monitoring is A KEY FACTOR for successful mastering.

1) If you have to process the audio file with other effects like reverbs, stereo image corrections, phase coherency adjustments, spectral enhancers, and so-on, be sure to do this before mastering with T-RackS®.

T-RackS® should ALWAYS be the LAST processing device used in the audio production work-flow. This is a must for obtaining the best quality from your T-RackS® masters.

2) DO NOT use digital resolution optimizer processes, like dithering or noise shaping, or other limiter/expanders before using T-RackS®. T-RackS® will add dithering (if you want) at the final stage. Dithering must be applied only at the END of the production work-flow.

3) If you are making an album consider that all your mastered mixes should sound roughly similar in loudness and tone. The listener will enjoy your work more if the various tracks sound coherent. You can accomplish this with T-RackS®, but it's very important that you know what you're starting with. First, spot check all the tracks before the mastering session and listen to the levels. Each song should have the same apparent loudness. If this is not yet the case, adjust your monitor volume to correct the differences.

Don't worry if all of the songs don't peak at 0 dB. It's more important that you perceive equal volume before beginning the session. T-RackS®' compressor and limiter will eventually give you perfect 0 dB levels. Listen for inconsistencies in EQ. These are the areas you'll focus on with T-RackS®' equalizer module.

Once you've accomplished these steps, you can move on to your mix!

2.2 Equalizing your master



fig. 6

Let's start equalizing your mix with the Equalizer module. Here you can apply frequency enhancements and/or corrections to your track.

T-RackS®' Equalizer section consists of a six band stereo parametric EQ, specially designed to achieve high-end performance in a precision mastering environment.

First, switch ON the EQ by clicking on the ON/bypass switch (fig. 6). The red LED will light, and the EQ will switch ON with default settings.



fig. 7

Each of T-RackS®' six filters has different filter shaping features, all especially developed for EQ mastering.

You'll find from left to right (fig. 7):

- 1) 4th order High-pass filter, from 30 Hz to 2 kHz.
- 2) Low shelving type filter, from 30 Hz to 2 kHz.
- 3) Low-mid peaking type filter, from 15 Hz to 20 kHz, with Lo and HiQ adjustments.
- 4) High-mid peaking type filter, from 15 Hz to 20 kHz, with Lo and HiQ adjustments.
- 5) High shelving type filter, from 1 kHz to 20.4 kHz.
- 6) 4th order Low-pass filter, from 1 kHz to 20.4 kHz.

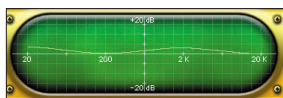


fig. 8

On the top row of knobs you will find all the Frequency controls, in the lower row you will find all the Gain controls.



fig. 9

Use the frequency knobs to find the frequencies you want to correct and use gain accordingly depending on the filter type.

You can easily check your modifications with the frequency response displayed on the scope-screen at the top (fig. 8).



fig. 10

The RESET ALL switch resets all knobs and switches to default settings for a flat response (fig. 9). By clicking on a knob while holding down the ALT key you will set that knob to its default (flat) value.

Use the single band ON/OFF switches to activate/deactivate a single band's effect (fig. 10).



fig. 11

The Hi/Low Q switches on the mid bands control the bandwidth of these filters: Wide band (Low Q) or Narrow band (Hi Q) (fig. 11). (see chapter 4).

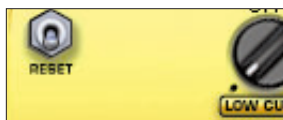


fig. 12

Setting the PATCH switch to position 1 (in the Mastering suite plug-in) means that the equalizer is at the beginning of the audio chain (default position) (fig. 12). This is only valid for the Mastering Suite plug-in, that contains all the modules. The single EQ module doesn't contain the PATCH switch.

For more description on the equalizer's individual controls please refer to chapter 5.

2.3 Compressing your master



fig. 13

Once you've reached satisfactory equalization you can begin to apply compression. If you're absolutely sure about the EQ, go ahead with compression anyway. You can make further adjustments to the EQ once you have applied compression.

Compression will make your mix sound tighter, more cohesive, and will give it greater punch and acoustic power. This module effectively emulates a tube compressor, so the mix will always sound warm with that in-the-face sound typical of the highly acclaimed hardware devices T-RackS® is modelled after.



fig. 14

First, activate the compressor by clicking on its bypass switch. The red LED will light up and with the default settings you will immediately hear the mix sound louder (fig. 13).

By raising the input drive you'll increase compression; lowering input will reduce it (fig. 14). This is not a conventional "threshold and ratio" compressor. This is a very soft-knee unit with a "no threshold" characteristic. This means that there isn't a particular level at which compression begins. You will see compression on the GAIN REDUCTION VU even at very low levels. This is a gentle compression type and it's perfect for mastering. Old tube compressors work this way.



fig. 15

The VU meter (fig. 15) indicates the level of compression in dB. When compression does not occur, the VU shows 0 dB. The ratio knob makes the compressor more versatile, giving a variable character to compression, from gentler to heavier. Attack and Release Time knobs will set the time constants of the compressor.



fig. 16

Stereo Enhancement affects the Stereo width of the Mix, enlarging or reducing it. At 0 dB it will not affect the stereo imaging. Sidechain HPF knob will change the character of the compression adding an high pass filter in the detecting stage of the compressor, making it progressively less sensitive to low frequencies (fig. 16).

Setting the PATCH switch to position 2 (in the Mastering suite plug-in) (fig. 17) means that the compressor comes after the equalizer in the audio path (default position).

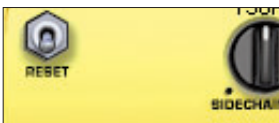


fig. 17

If you want the compressor to be the first in the signal path click on "1" on the patching sw on the compressor. This is only valid for the Mastering Suite plug-in, that contains all the modules. The single Compressor module doesn't contain the PATCH switch. For a description of the Compressor's individual controls please refer to chapter 6.

2.4 Limiting your master



fig. 18

T-RackS® Plug-In limiter has been enhanced with a new multiband algorithm that delivers a more detailed and accurate performance. It now allows the user to adjust the individual bands (low, mid and high) with different and personalized settings, for example to squeeze only low frequencies (fig. 18).

Click on the bypass switch to activate the limiter. The red LED will come on. The input drive knob (fig. 19) controls the amount of signal that drives the multiband limiter input. Higher values produce a louder signal, meaning peaks will be limited more frequently. The analogue VU (fig. 20) shows the amount of gain reduction in dB. When limiting does not occur the VU shows 0 dB.



fig. 19

Being a multiband limiter, this VU shows the average of the limiting by the three bands.

The release time knob controls the speed of limiting in the recovery phase. This is the time the limiter will take to return to unity gain after peak limiting. The overload control lets you decide how to reduce peaks in your mix. A lower value will result in a more frequent gain reduction action by the limiter and a higher value will result in a less frequent limiting action but in a more recurring analogue-like clipping (fig. 21).



fig. 20

Threshold knobs determine the amount of limiting of each individual band, when the knobs are lowered the compression/limiting will be higher, and vice versa. The Level knobs determine the volume of each individual band. Use the Crossover knobs to dial in the bands splits points over the audio spectrum (fig. 18).

For a description of the Limiter individual controls please refer to chapter 7.

2.5 Output stage

This is a soft clipping stage that's very useful to limit by clipping a signal at a level that's very close to 0 dB but never goes over. You have a variable-shape clipping stage that you can use to increase the loudness of the master, cutting out unwelcome peaks.



fig. 21

If the OUTPUT knob (fig. 22) is left at its default position (0 dB) the output of this module will never go beyond -0.05 dBfs, regardless of the Gain knob setting. This means that you can “push” the master level to get more loudness using the Gain control unless you hear too much clipping and distortion, without being concerned about overs.

You can adjust the clipping shape with the SAT control (fig. 23), from ultra soft (analogue-like) up to digital straight hard clipping. During these operations observe the SAT and OVER leds. SAT lights up when the signal is in the non-linear zone of the clipping stage, meaning some peak is being cut



fig. 22

by the clipper.

OVER (fig. 22) lights up when digital clipping in the final output stage is detected. It's important to avoid overs because they're not permitted in the standard CDs preparation process. Always check the OVER leds, your master should be as close as possible to the 0 dB level but without overs. For a description of Output Stage's individual controls please refer to chapter 8.

2.6 Presets



fig. 23

T-RackS® includes a set of more than 100 presets. Use them as a template for the entire suite or for single modules. They're very useful for learning some tricks on the module settings, so you can use them as a tutorial both for mastering and individual tracks processing too.

For a description of Output Stage's individual controls please refer to chapter 6.

Chapter 3 Equalizer section



fig. 24

T-RackS® Equalizer (fig. 24) section consists of a high quality six-band parametric EQ, specially designed to achieve high-end performance in a mastering environment. It consists of:

- 1) 4th order High-pass filter, from 30 Hz to 2 kHz.
- 2) Low shelving type filter, from 30 Hz to 2 KHz.
- 3) Low-mid peaking type filter, from 15 Hz to 20 kHz, with Lo and HiQ adjustments.
- 4) High-mid peaking type filter, from 15 Hz to 20 kHz, with Lo and HiQ adjustments.
- 5) High shelving type filter, from 1 KHz to 20.4 kHz.
- 6) 4th order Low-pass filter, from 1 KHz to 20.4 kHz.



fig. 25

3.1 RESET ALL

This button (fig. 25) resets all the Equalizer controls. To reset a single knob click on it while holding the ALT key.



fig. 26

3.2 LOW CUT

FREQ control

This knob (fig. 26) adjusts this frequency of the high pass filter. This means that only the frequencies higher than the value set will pass-through the filter. Adjusting the knob clockwise will increase the cut-off frequency. Sweep range is from 30 Hz to 2 kHz. While sweeping through the frequency range you can check the value (in Hz) by looking at the numeric value displayed above the knob.



fig. 27

LOW CUT band ON/OFF

Use this button (fig. 27) to turn On and Off the band filter. When the filter is active the button is normal, when the filter is OFF the button is shaded. By default this filter is bypassed when the Eq is opened.



fig. 28

3.3 LOW

FREQ control

This knob (fig. 28) adjusts the frequency range of low-shelving filter. All frequencies up to this value will be boosted or reduced. You can set the cutoff frequency anywhere from 30 Hz to 2 KHz. While sweeping through the frequency range you can check the value (in Hz) looking at the value above the knob.



fig. 29

GAIN control

Use this control (fig. 29) to boost or reduce the level of this band. Clockwise rotation will boost the band and vice versa. The value is displayed under the knob in dB. The range is from -15 dB to +15 dB.



fig. 30

LOW band ON/OFF

Use this button to turn the filter On and Off (fig. 30).

When the filter is active, the button normal, when the filter is OFF the button is shaded.

3.4 LOW MID

FREQ control

This knob (fig. 31) adjusts the center frequency of the Low-Mid peaking filter. This filter will boost or reduce a portion of the audio spectrum around the set center frequency. You may set the center frequency anywhere from 15 Hz to 20 kHz. While sweeping through the frequency range you can check the value by looking at the value displayed above the knob.



fig. 31

GAIN control

Use this control (fig. 32) to boost or reduce the effect of this filter. Clockwise rotation will boost the filter and vice versa. Look at the value below the knob to check the value (in dB). Range is from -15 dB to 15 dB.



fig. 32

HiQ and LowQ switch

This switch (fig. 33) lets you choose between two bandwidth characteristics. Low Q position will give you a wider and more natural response (wide-band). Hi Q position will give you a narrower and more selective response (narrow-band).



fig. 33

LOW MID band ON/OFF

Use this button (fig. 34) to turn On and Off the band filter. When the filter is active the button normal, when the filter is OFF the button is shaded.

3.5 HI MID

FREQ control

This knob (fig. 35) adjusts the center frequency of the Hi-Mid peaking filter. This filter will boost or reduce a portion of the audio spectrum around the centre frequency you set. The range is from 15 Hz to 20 kHz. While sweeping through the frequency range you can check the value (in Hz - kHz) by looking at the value above the knob.



fig. 34



fig. 35



fig. 36



fig. 37



fig. 38



fig. 39



fig. 40



fig. 41



fig. 42

GAIN control

Use this control (fig. 36) to boost or reduce the effect of this filter. Look at the value below the knob to check the value (in dB) you're setting. The range is from -15 dB to 15 dB.

HiQ and LowQ switch

This switch (fig. 37) lets you choose from two bandwidth characteristics. Low Q position will give a wider and more natural response (wide-band). Hi Q position will give a narrower and more selective response (narrow-band).

HI MID band ON/OFF

Use this button (fig. 38) to turn the filter On and Off.

When the filter is active the button is normal, when the filter is OFF the button is shaded.

3.6 HI

FREQ control

This knob (fig. 39) adjusts the frequency range of the high shelving filter. All frequencies above this value will be boosted or reduced. It ranges from 1 Hz to 20.4 kHz. While sweeping through the frequency range you can check its value (in Hz) with the value above the knob.

GAIN control

Use this control (fig. 40) to boost or reduce the effect of this filter. Clockwise rotation will boost its effect and vice versa. Look at the value below the knob to check the value (in dB) you're setting. Its range is from -15 dB to +15 dB.

HI band ON/OFF

Use this button (fig. 41) to turn the band filter On and Off.

When the filter is ON the button is normal, when the filter is OFF the button is shaded.

3.7 HI CUT

FREQ control

This knob (fig. 42) adjusts the cut-off frequency of the lo-pass filter. This means that only frequencies lower than this value will pass-through the filter. Adjusting the knob clockwise will increase the cut-off frequency. Its range is from 1 kHz to 20.4 kHz. While sweeping through the frequency range you can check the value (in kHz) looking at the value above the knob.

HI CUT button

Use this button (fig. 43) to turn the band filter On and Off.

When the filter is active the button normal, when the filter is OFF the button is shaded. By default this filter is OFF when the plug-in first opens.



fig. 43



fig. 44



fig. 45



fig. 46

3.8 OUTPUT LEVEL

Use this knob (fig. 44) to compensate for the global EQ gain (or loss) to have a consistent level when bypassing the EQ to make A/B comparisons.

3.9 PATCH

This is only valid for the Mastering suite plugin (the individual plug-ins doesn't have the PATCH connections leds).

This is where you set the order of the EQ modules in the audio chain (fig. 45). The number that's highlighted is the position where this module is in a virtual connection.

3.10 BYPASS/ON

This switch (fig. 46) allows you to bypass the Equalizer module. When the LED is lit, the Equalizer is ON. To turn OFF the EQ module click the switch so that the LED is OFF.

Chapter 4 Compressor section



fig. 47

The T-RackS® tube compressor (fig. 47) emulates that classic, analog, hi-end vintage gear used in mastering applications. This will give you that big, warm, in-face sound typical of these highly acclaimed hardware devices. This compressor has some unique features that make it very flexible but also very musical and creative.

4.1 RESET ALL

This (fig. 48) resets all the Compressor controls. To reset a single knob click on it while holding the ALT key.



fig. 48

4.2 SIDECHAIN HPF

This control (fig. 49) adds a high pass filter to the detector stage of the compressor. The detector stage is where the compressor analyzes the incoming signal and determine how gain reduction must be applied. This variable high pass filter prevents, when turned up, that compression pumping effect mainly caused by the programme's low end content. The higher this knob the softer and more inaudible the compression character will be. At the minimum or at very low settings the compression will be much more aggressive and noticeable.



fig. 49

Use lower settings when you want to “hear” the compression effect and use higher values for a gentle compression, as you may want in acoustic mixes.

4.3 ATTACK TIME

Adjust this control (fig. 50) to change the speed of compression in the attack phase. With higher values, transients will pass unaltered through the compressor. With lower values the gain reduction will respond quicker and transients will be more affected. Value range is from 15 ms to 80 ms. While adjusting, check the release time value above the knob to see the attack time value you're setting.



fig. 50

4.4 RELEASE TIME

Adjust this control (fig. 51) to change the speed of compression in the release phase. Using higher values, the recovery time will be longer and the compression will be less noticeable. Using lower values, the recovery time will be shorter and the average loudness will be higher. Value range is from 70 ms to 1.5 s. While adjusting check the release time value above the knob.



fig. 51



fig. 52

4.5 STEREO ENHANCEMENT

This control will (fig. 52) affect the stereo imaging of your mix. Turning it up you will increase the stereo width and vice versa. While adjusting this knob check the value you're setting (in dB). Value range is from -5 to +5 dB, where 0 dB has no effect.



fig. 53

4.6 INPUT DRIVE

This knob controls (fig. 53) the amount of signal that drives the compressor's input. This is a no threshold point leveller so the amount of compression is determined by the strength of input signal, like the old tube levellers. While adjusting you can check your setting (in dB) by looking at value below the Drive knob. Range is from -18 dB to +18 dB.

4.7 GAIN REDUCTION VU

This analog VU (fig. 54) shows the amount of Gain reduction in dB. When compression does not occur, the VU shows 0 dB. When compression is affecting the signal the VU indicates the level of compression in dB.



fig. 54

4.8 RATIO

Use this control (fig. 55) to define the strength of the compression. Lower values give a gentler and less noticeable compression effect, more suitable for 2-tracks mixes and acoustic sounds. Higher values give a more effective compression effect with, at times, all the side-effects you might expect from a over-compression process. These effects are sometimes desirable, that's why T-RackS®'s compressor ratio control sweeps up to a value of 5. If you are not sure which ratio control value is suitable for your needs, start setting this control at 2 - 3.



fig. 55

4.9 OUTPUT LEVEL

This knob (fig. 56) controls the compressor output level.



fig. 56

4.10 PATCH



fig. 57

This (fig. 57) is where you set the order of the modules in the audio chain. This is only valid for the Mastering suite plug-in. The single compressor module does not have this selector. Switching this setting lets you position the compressor in the Suite plug-in. The compressor is by default always placed after the EQ, before the Limiter.

4.11 BYPASS/ON



fig. 58

This switch (fig. 58) allows you to bypass the Compressor module. When the LED is lit, the Compressor is ON. To turn OFF the Compressor module, click the switch so that the LED is OFF.

Chapter 5 Limiter section



fig. 59

This three-band peak limiter (fig. 59) can make the mix even louder by reducing unwanted peaks. The peak limiting action is made separately on the three bands (low, mid, high). Use this device to obtain that "Brick Wall" sound from your mix. You will have a very loud master, without clipping, though as with any of these processes, use care not to over-do it. Leaving the output knob set to 0 dB means that the limiter output signal can't go beyond -0.05 dBfs.

5.1 RESET ALL

This (fig. 60) resets all the Limiter controls to their default values. To reset a single knob click on it while holding the ALT key.



fig. 60

5.2 OVERLOAD

This control (fig. 61) will affect the way Limiter reduces peaks. Setting this knob to a lower value will result in more frequent "pure" gain reduction by the limiter. Setting this knob to a higher value will result in less frequent gain reduction, but in more frequent clipping. Obviously setting this control at higher values will give you more loudness, but more clipping across the 0 dB level.



fig. 61

5.3 RELEASE TIME

Adjust this control (fig. 62) to change the speed of limiting in the release phase. This is the amount of time the limiter will take to return to normal gain after a peak limiting has occurred. While adjusting, check the current Limiter numeric display to see the release time you're setting. Value range is from 60 ms to 1.6 seconds.



fig. 62

5.4 INPUT DRIVE

This knob (fig. 63) controls the amount of signal that drives the multiband limiter input. Unlike the compressor module, this one has an exact threshold point where it starts to limit the signal. If you drive more signal through the limiter input, more peaks will be limited and the sound will be louder. If you want to preserve more peaks, set this control to a lower value. Values range is from -10 dB to $+15$ dB. While adjusting Input Drive, check the values (in dB) by looking at the value above the Drive knob.



fig. 63

5.5 GAIN REDUCTION VU



fig. 64

This analog VU (fig. 64) shows the amount of Gain reduction in dB. When limiting does not occur the VU shows 0 dB. When limiting is affecting the signal, the VU indicates the level of limiting in dB. This VU shows the average value of limiting by all three spectral bands.

5.6 SINGLE BAND THRESHOLD

These knobs (fig. 65) set the limiting amount over the individual band. Lowering the value the threshold will be lower and the limiting more frequent. Raising the threshold will make the limiter compress that band less. You can check this by looking at the analog VU on the right, this shows the average compression of the three bands.



fig. 65

5.7 SINGLE BAND LEVEL

These knobs (fig. 66) set the level (volume) of the three bands. This is very useful to get the correct level of each band after the limiting. Use this as a very broad tone control too on the mix, this is a global, three bands, equalizer too.



fig. 66

5.8 CROSS OVER POINTS

These two knobs (fig. 67) sets the two frequency split points, the low-mid split and the mid-high split. The default positions are in general fine but you can experiments with different settings. For example lower the low-mid point to, say, 70 Hz to only limit and tighten-up the low end.



fig. 67

5.9 OUTPUT LEVEL

This knob (fig. 68) controls the Limiter output level.



fig. 68

5.10 PATCH

This is where you set the order of the modules in the audio chain ([fig. 69](#)). This is only valid for the Mastering suite plug-in. The single compressor module does not have this selector. Switching this setting lets you position the compressor in the Suite plug-in. The Limiter is by default always placed after the Compressor, before the Output stage.



fig. 69

5.11 BYPASS/ON

This switch ([fig. 70](#)) allows you to bypass the Limiter module. When the LED is lit, the Limiter is ON. To turn OFF the Limiter module, click the switch so that the LED is OFF.



fig. 70

Chapter 6 Soft-clipping output stage



fig. 71

T-RackS® Mastering suite has a clipping stage at the output (fig. 71). This is useful every time you need to cut out all the peaks that keep the average level of a signal too low. Peak clipping is very often used in professional mastering because it's in most cases more transparent than peak limiting (which you can obtain with the Limiter).

6.1 GAIN



fig. 72

The Gain control (fig. 72) adjusts the pre-level of this clipping stage. This is the level of the signal injected into the clipper and will determine the quantity of saturation applied to the audio.

TIP: leave the OUTPUT now at 0 dB because doing this the clipper limiter will never go beyond -0.05 dBfs, regardless of the Gain level you dial in.

6.2 SHAPE



fig. 73

The clipping shape of this stage is adjustable (fig. 73). It's continuously variable from a straight digital hard clip (fully clockwise) to ultra soft non-clipping mode (fully counterclockwise).

Depending on music styles, the clipping can be less noticeable either with softer or harder shapes; that's why this control is continuously adjustable. Only your ears can detect the optimal clipping shape for the piece of music you're mastering. In any case, if you're not sure, start with a middle value, say 3 dB, this is a good starting point.

6.3 OUTPUT



fig. 74

This is internally calibrated to ensure that the output of the clipper that never overloads. This means that, regardless the input level of the clipper and the position of the GAIN knob, you'll never get OVERS out from this module because the internal clipping has a -0.05 dBfs ceiling. This is only valid if the OUTPUT knob (fig. 74) is set at 0 dB.

6.4 SAT LED



fig. 75

When the signal is in the non-linear zone (saturation) the SAT led (fig. 75) lights up.

6.5 OVER LEDs

These two leds (**fig. 76**), separate for left and right channels, light up ONLY when a digital over at the clipper outputs has occurred. In theory they should never turn on. Adjust the OUTPUT control to ensure they stay off, with as high a level as possible. Remember this simple rule: when mastering, 0 dB is the goal, overs are the worst possible scenario. Some playback equipment even goes crazy when continuously playing 0dB samples (overs).



fig. 76

6.6 PATCH

This (**fig. 77**) is where you set the order of the modules in the audio chain. This is only valid for the Mastering suite plug-in. The single Output Stage module does not have this selector. Switching this setting lets you position the compressor in the Suite plug-in. The Output Stage is by default always placed after the Limiter.



fig. 77

6.7 BYPASS/ON

This switch (**fig. 78**) allows you to bypass the Output Stage module. When the LED is lit, the Output Stage is ON. To turn OFF the Output Stage module, click the switch so that the LED is OFF.



fig. 78

Chapter 7 Support

7.1 Support

For any question you may have please refer to the FAQ at:

<http://www.t-racks.com/TRFaq.html>

where you'll find answers to the most common questions.

For free support write at:

support@t-racks.com

7.2 User Area

Together with your authorization code you will also have received a user id and password to access your personal user area in T-RackS® website.

The personal user area is an advanced online service provided you by IK Multimedia that allows you to download patches and updates or produce new authorization codes in the event that you accidentally lose the previous ones.

To access your personal user area simply go here:

<https://www.ikstore.com/Login/IKLogin.cgi>

In the personal user area you can:

1) Request a new authorization code

This is useful for users which need to reinstall their applications with a new authorization code. The codes are supplied immediately with no need to wait for receiving them.

2) Submit a support request

Support requests received using this form will follow a preferential line and will be answered first within our standard 24 hours lead time (business hours).

3) Edit your personal and product data

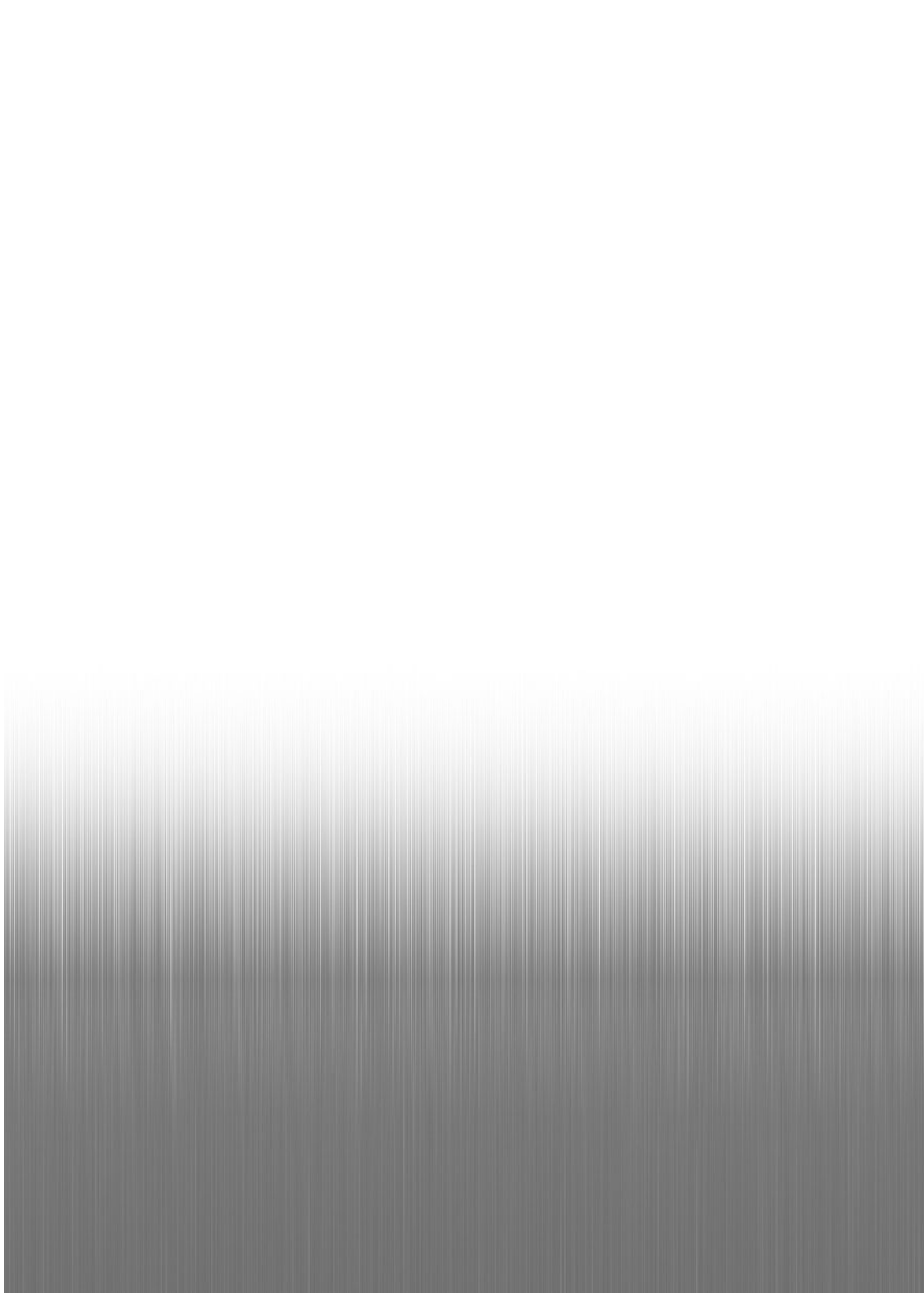
Here you can manage all your personal and product data and recall your serial numbers easily.

4) Download software updates and free contents

According to the products you've registered, here you'll find the latest patches/updates and free contents to download.

5) Customize your Username/Password

Here you can change your Username/Password in order to remember them easily.



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