

# PSY Q

## Introduction

Interface

Connections

Inputs

Outputs

## Controls

General

Level Meter

Input Level Meter

Reduction meter

Clipping indicators

Global Functions

EQ section

Sound

High EQ

Master section

Stereo

Gain

Margin

SoftClip

Bass compressor



## Applying the PSY Q

First steps

Connections

Starting

Sound

High EQ

SoftClip

Mixing

Mastering

Sound reinforcement

Version 1.0

# Introduction

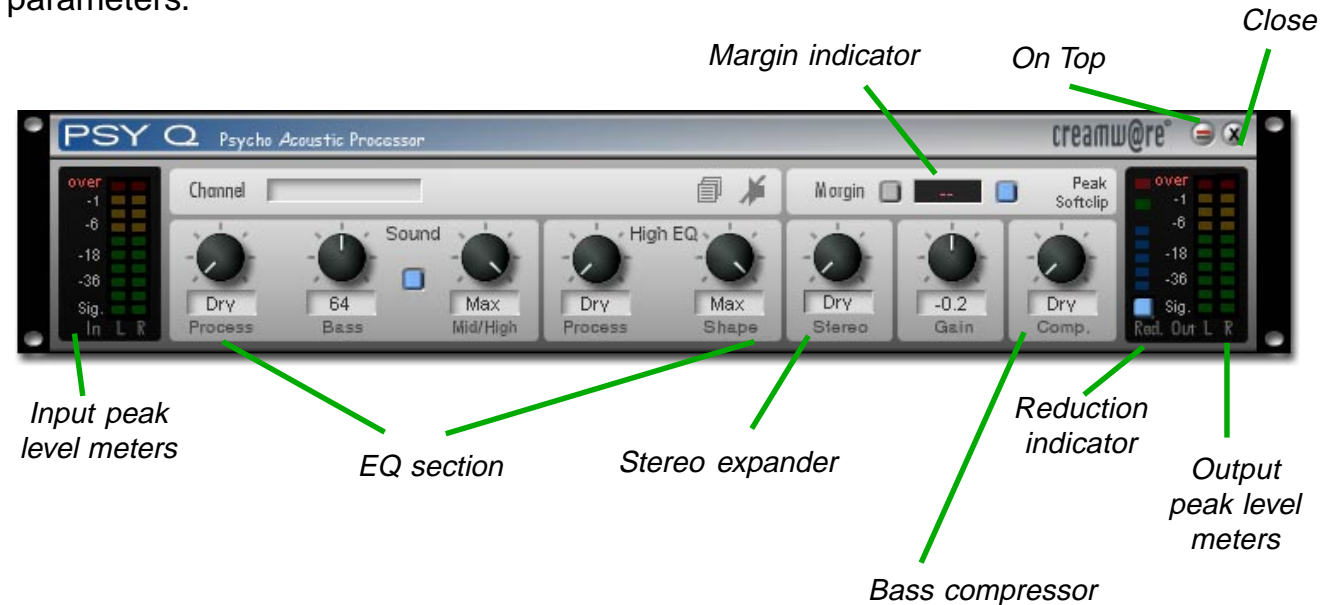
The PSY Q is an easy to use psychoacoustic equalizer with an integrated stereo expander (enhancer), a bass compressor and a SoftClip unit.

The PSY Q is the perfect tool for lending a specific character to individual sounds, thereby giving them additional presence in a mix. You can dial in the desired sound quickly and precisely, because the filter structures used in the PSY Q are designed to tailor the sound to the innate preferences of the human ear. The PSY Q is also useful for mastering – especially with live stereo recordings, but in general anywhere, where the transparency of the sound is to be improved.

Special controls allow to find your ideal settings quickly, as the sonic changes produced by the individual effects sections can be mixed with the original signal in any desired proportion.

## Interface

The PSY Q features a "rack device" design and offers direct access to all parameters.



## Connections

The PSY Q has connections typical for an insert effect:

### Inputs

**InL, InR**

### Outputs

**OutL, OutR**



# Controls

## General

### Level Meter

The level meters operate as peak meters whereby they display the maximum signal levels (as opposed to averaged levels). A *peak hold* function displays the signal peaks in the display for a brief period of time. A *margin* display lies beneath each meter. This indicates the highest peak level reached so far. A margin reset function clears (resets) all margin displays.

Each "LED" is associated with a specific signal level and lights up when that level is reached or exceeded.

Margin  
Reset



### Input Level Meter

**Red LED:** The red LED indicates a level of -0.05dB. Strictly speaking this is not an *over* condition, but it does indicate a very high signal level. To be safe you should not allow analog input signals to exceed -3.0dB.

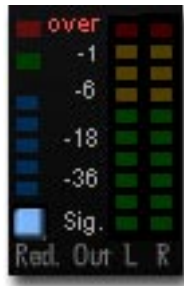
With digital signals, such as those from a wave player, you can let the red LED flash more frequently. This does not indicate overs, just a high signal level. If the digital input signal has been compressed and normalized this LED will light up quite often.

- |                       |                |
|-----------------------|----------------|
| 1. Yellow LED:        | -1.0dB         |
| <b>2. Yellow LED:</b> | <b>-3.0dB</b>  |
| 3. Yellow LED:        | -6.0dB         |
| 1. Yellow LED:        | -12.0dB        |
| 2. Green LED:         | -18.0dB        |
| 3. Green LED:         | -24.0dB        |
| 4. Green LED:         | -36.0dB        |
| 5. Green LED:         | -48.0dB        |
| <b>6. Green LED</b>   | <b>-60.0dB</b> |

## Reduction meter

Displays the gain reduction of the bass compressor.

- 1. blue LED: -1.0dB
- 2. blue LED: -3.0dB
- 3. blue LED: -9.0dB
- 4. blue LED: -12.0dB
- 5. blue LED: -18.0dB



## Clipping indicators

**Peak LED: -0.05dB** The Peak LED indicates internal overloading. If it lights, you should turn the Gain control down until it goes out again, to avoid distortion.

**Softclip LED:** The SoftClip LED indicates that the SoftClip unit is producing an effect.

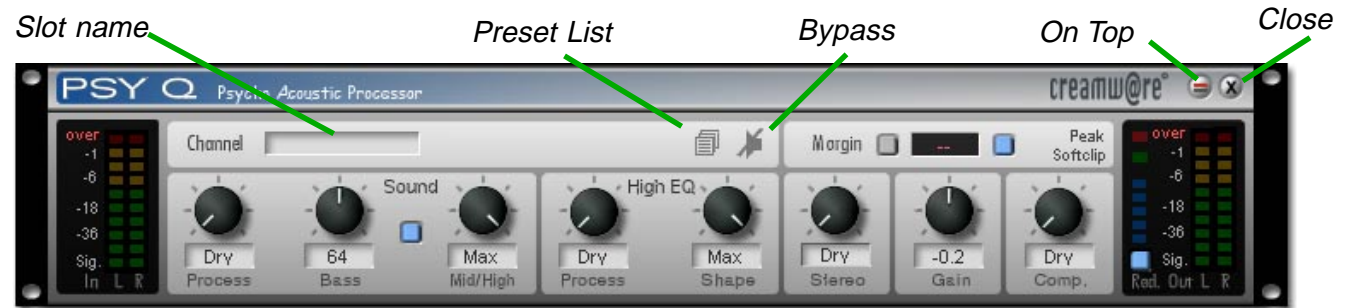
## Global Functions

**Slot name:** When the PSY Q is loaded into an insert slot, the name of the slot appears here (e.g., the name of the channel strip).

**Preset List:** Opens/closes the device preset list dialog.

**Bypass:** The PSY Q has a special bypass circuit which compensates for the adjusted Gain.

**On Top:** When enabled this function prevents other windows from being drawn over the mixer panel - the mixer therefore remains "on top" of any other windows. When not enabled, other windows can obscure the mixer.



**Close:** The Close button removes the mixer panel from the display. To open it again, double click on the mixer module representation in the project window or on the minimized mixer graphic in the Device bar.

## EQ section

The equalizer in the PSY Q comprises two units. One unit (*Sound*) processes the overall sound, while the other (*High EQ*) performs additional processing in the high frequency range. Each unit has a *Process* control which allows you to adjust its effect upon the sound.

### Sound

Adjusts the overall sound. This sound is determined by the combination of the *Bass* and *Mid/High* settings. With *SoftMode* active, the sound in the bass range is softer. Leaving it deactivated results in a drier characteristic. The transfer factors are almost identical in both cases, but the phase responses are different.

Since two completely different algorithms are employed here, sound transients can occur when switching *SoftMode* on or off.

**Process:** This controls determines the extent to which the settings affect the original signal.



**Bass:** Adjusts the bass portion of the signal.

This control is effective only when the *Process* control is not adjusted to "Dry".

**Sound:** This button switches *SoftMode* on or off (*SoftMode* is active when the button is blue).

**Mid/High:** Adjusts the mid/high portion of the signal.

This control is effective only when the *Process* control is not adjusted to "Dry". Its effect is also influenced by the settings in the *High EQ*) section.

### High EQ

This EQ has a warm sound reminiscent of an LC EQ. It is distinguished particularly by its soft highs. The settings in this section affect the overall sound in a very complex manner. To prevent the addition of too much high-frequency energy, the *Process* control in this section interacts with the *Mid/High* control in the *Sound* section. The more the *High EQ* is used, the less effect the *Mid/High EQ* has.

**Process:** This controls determines the extent to which the settings affect the original signal.

**Shape:** Adjusts the filter characteristic.

This control is effective only when the *Process* control is not adjusted to "Dry".

## Master section

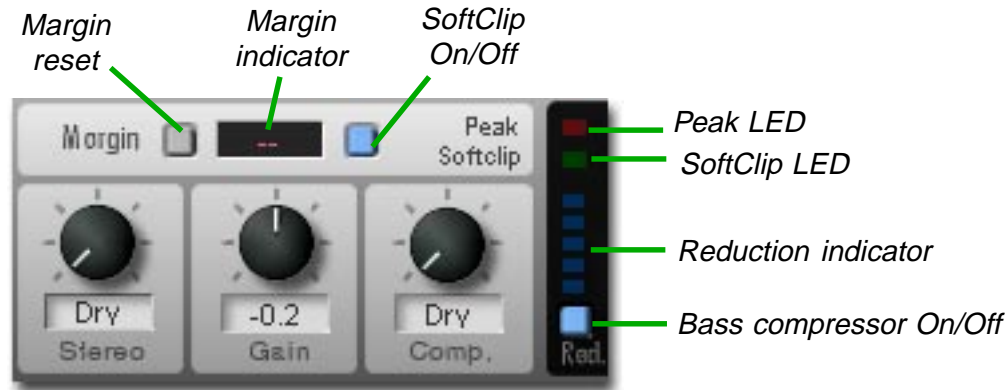
The Master section includes the Stereo Expander, Gain, Margin, SoftClip and the Bass Compressor.

### Stereo

The integrated stereo expander analyzes the incoming signal and splits it into three components (center, left and right). The right-channel component is mixed phase-inverted to the left channel, and vice versa. This intensifies the spatial impression. This process is mono compatible but can result in a weak center component at extreme settings.

Level compensation is performed in order to avoid overloading.

Compressed sound material (e.g., MP3 files) cannot always be successfully processed via the stereo expander – undesirable sound artifacts may be produced.



### Gain

The PSY Q can produce very extreme sound modifications. This can in turn lead to extreme level alterations. Nonetheless, the built-in headroom prevents at least unwanted internal overloading. To use the SoftClip unit, you must fully exhaust this headroom. Set the Gain control so that the Margin indicator shows a value in the vicinity of -1.0 dB. This control has no effect upon the sonic result, but merely serves to adjust levels as required.

### Margin

Indicates available internal headroom. If the Peak LED lights, you should check the headroom. It should amount to a minimum of -0.5 dB. Click the Margin reset button to reset the Margin indicator.

## SoftClip

When the PSY Q is being run at maximum levels, the SoftClip module permits a loudness increase of up to 2 dB. Short signal peaks are processed inaudibly, permitting a higher overall signal level to be used. The green SoftClip LED indicates when the module is producing an effect.

**SoftClip:** This button switches SoftClip on or off (SoftClip is active when the button is blue).

## Bass compressor

The bass compressor helps compensate the level increase resulting from intense changes in the bass range. The compressor is switched on/off via the button below the Reduction indicator. The compressor is active when this button is blue.



# Applying the PSY Q

Operation of the PSY Q is quite easy and intuitive. This section will show you step-by-step how to use it effectively.

## First steps

For the initial test drive, use a piece of music you are familiar with – for example, fed in via a Wave player.

## Connections

Load the PSY Q into your current project and connect it to a sound source (e.g., Wave Source 1). The PSY Q can also be loaded as an insert effect. Connect its outputs to your monitor signal path (e.g., Pulsar Analog Dest).

## Starting

Upon loading, the PSY Q is adjusted to neutral settings – your music piece will sound the same as if the PSY Q were not there, although all of the PSY Q's components are already active.

The input peak meters (left) display the input signal level. If the input level is already very high (-3 dB or higher), you should drop the Gain control somewhat in order to provide headroom for the sound processing. Now adjust the *Process* control in the Sound section to roughly mid-position (quickly done by double-clicking on this control). Use the Bypass control to help evaluate the alterations being made to the sound.

The adjustments which you are able to make will inherently be pleasing to your ears – the PSY Q is designed to work that way. You will find that you quickly become accustomed to the altered sound, even though the alterations may at times be rather drastic. Therefore, make sure to frequently compare the modified sound with the original by means of the *Bypass* switch.

## Sound

Now adjust the sound as desired by changing the *Bass* and *Mid/High* control settings. Use the *Process* control to regulate the intensity of the effect.

Try clicking the Sound button as well. This causes an additional filter network to be loaded. The resulting transitional sounds are normal. With SoftMode deactivated, the sound is somewhat drier.

You can apply the bass compressor to affect the bass sound intelligently. For example, if you've strongly emphasized the bass component, the signal level will also be raised. However, this decreases the possible overall loudness. The bass compressor intercepts level jumps in the bass range. Bass sounds are thus extended in time, thereby attaining more presence in the mix, without producing unnecessarily strong increases in the overall signal level.

## High EQ

With material which is already rich in high-frequency content, the highs in the Sound section sound very clear and defined. The High EQ can soften these highs. In order to prevent the two high-frequency components from adding up excessively, the high component of the Sound section is progressively decreased as the High EQ amount is further raised.

Now bring the *Process* control gradually up to maximum and experiment with the *Shape* control.

You can also achieve good results with a combination of both units by setting the *Mid/High* and *Process* (High EQ) controls to mid-position by double-clicking them.

## SoftClip

Once all of your sound adjustments have been made, you can increase the subjective loudness of the signal by up to 2 dB using the SoftClip module.

To do this, you must set the Gain control so that maximum signal level is reached. Check remaining headroom via the Margin indicator. The settings of the bass compressor and other components are unaffected by this adjustment.

The green SoftClip LED indicates when the the module is producing an effect. Unwanted signal peaks are inaudibly limited in this manner. With SoftClip activated, the maximum output level is limited to -0.2 dB.

## Mixing

The PSY Q is very useful for the processing of individual tracks which you wish to especially emphasize.

Drag the PSY Q (from the Plug-In folder or the File Browser) into the insert slot of the stereo channel strip whose signal you wish to process.

Go sparingly with the use of this sonic "cake icing". When too many tracks have been emphasized in the mix, no room remains for arrangement of sonic depth. It is typically sufficient to process one or two instruments or instrument groups (e.g., a drum set or drum loop, an acoustic guitar, voices or a horn section). Synth sounds can also be enhanced through the use of the PSY Q.

## Mastering

Older recordings, live edits and other "raw recordings" are immediately rendered lively and clear by the PSY Q, without losing their character. The spoken word becomes more intelligible and fine nuances more distinct.

If you've already used the PSY Q in the mix, you should apply it with restraint during mastering.

## Sound reinforcement

The PSY Q can also be used in sound reinforcement. In this application, it likewise improves intelligibility and thus enables you to deploy your system more effectively.

# Index

## B

Bass 6  
Bass compressor 2, 8  
blue LED 4  
Board ID 6  
Bypass 5

## C

Clipping indicators 4  
Close 2, 5  
Connections 2, 9  
Controls 3

## E

EQ section 2, 6

## F

First steps 9

## G

Gain 7  
Global Functions 5  
Green LED 3

## H

High EQ 6, 10

## I

InL 2  
Input Level Meter 3  
Input peak level meters 2  
Inputs 2  
InR 2  
Interface 2  
Introduction 2

## L

Level Meter 3

## M

Margin 7  
Margin indicator 2  
Master section 7  
Mastering 11  
Mid/High 6  
Mixing 11

## O

On Top 2, 5  
OutL 2  
Output peak level meters 2  
Outputs 2  
OutR 2

## P

Peak LED 4  
Preset List 5  
Process 6

## R

Red LED 3  
Reduction indicator 2  
Reduction meter 4

## S

Shape 6  
Slot name 5  
SoftClip 8, 10  
Softclip LED 4  
Sound 6, 9  
Sound reinforcement 11  
Starting 9  
Stereo 7  
Stereo expander 2

## Y

Yellow LED 3