

# Pristine Peaks

## Ultra-low Distortion Peak Limiter

Audio effect plugin by Raising Jake Studios

Pristine Peaks is an ultra-low distortion peak limiter plugin that uses a unique approach to peak limiting. There is no saturation or clipping in Pristine Peak's gain reduction processing which results in a very "clean" sound.

Pristine Peaks offers features for mixing as well as final mastering including Dither and ISP (Inter-Sample Peak) detection.

Pristine Peaks is a 64-bit VST2, VST3 and AAX plugin for Windows and "Universal Binary" VST2, VST3, AU and AXX plugin for Mac OS 10.11 or higher on Intel and Apple Silicon.

### INSTALLATION INSTRUCTIONS

Installing the Pristine Peaks plugin is simply a matter of copying and pasting the appropriate files from the Pristine Peaks purchased download to the proper folders on your computer.

All RJ Studios plugin files are double zipped. The top-level zip file (download) contains two sub-files for Mac ("dmg") and PC ("zip") versions that are independently zipped. This was necessary to preserve the Pace iLok signatures for the AAX plugins for the respective OS systems. Please unzip the Mac or PC sub-files before copying the desired plugin to your folders

#### FOR PC ("x64 PC zip" folder)

To install the VST3 plugin: make sure your DAW is closed then copy the "PristinePeaks.vst3" file from the download file and save it to your VST3 plugin folder (typically C:\Program Files\Common Files\VST3). Restart your DAW and scan the plugins folder from your DAW's plugin manager.

To install the VST2 plugin: make sure your DAW is closed then copy the "PristinePeaks.dll" file from the download file and save it to your VST2 plugin folder (typically C:\Program Files\Steinberg\VSTPlugins). Restart your DAW and scan the plugins folder from your DAW's plugin manager.

To install the aaxplugin for Pro Tools: make sure your DAW is closed then copy the "PristinePeaks.aaxplugin" file from the download file and save it to your Avid plugin folder (typically C:\Program Files\Common Files\Avid\Audio\Plug-Ins). The plugin will be automatically scanned/added the next time Pro Tools is opened.

#### FOR MAC ("dmg" folder)

To install the VST2, VST3 and/or AU plugins, make sure your DAW is closed then copy the "PristinePeaks.vst" and/or "PristinePeaks.vst3" and/or "PristinePeaks.component" folders from the download file and save them the VST and/or VST3 and/or Component folders on your Mac under /Library/Audio/Plugins.

**NOTE:** On Mac OS 10.13 and later a reboot may be required before AU plugins will show up in your DAW(s) – and is typically required for Logic Pro X.

To install the AAX plugin for Pro Tools: make sure your DAW is closed then copy the “PristinePeaks.aaxplugin” file from download file and save it to your Avid plugin folder (typically /user/Library/Application Support/Avid/Audio/Plug-Ins). The plugin will be automatically scanned/added the next time Pro Tools is opened.

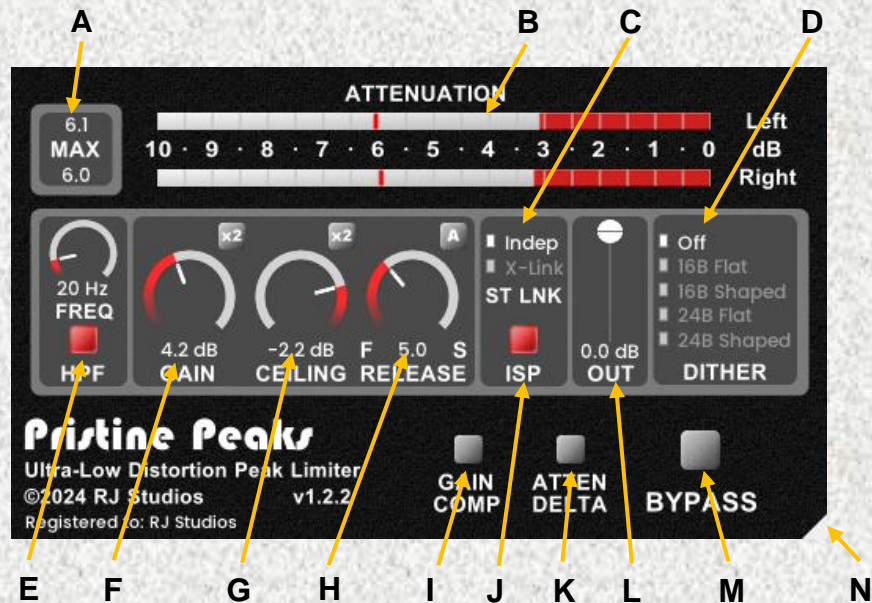
## **REGISTRATION**

Pristine Peaks will be operating in demo mode when first installed and will operate unrestricted for 14 days. At the end of 14 days the demo will cease output unless a license is purchased. To install your license, click on the registration at the bottom left corner of the plugin window; copy and right-click paste the registration code from your purchase receipt then press enter on your keyboard.

**NOTE: Internet connection is required during registration. If your system is typically isolated from the internet for security or performance reasons you may disconnect after the plugin shows “Registered to: your name”.**



## Plugin Controls



**A – Max Reduction** – captures and displays the highest amount of gain reduction that has occurred up to the current time. This display resets on DAW stop/start or by right mouse-clicking anywhere in the meter area.

**B – Attenuation Meters** – displays the current peak and average gain reduction.

**C – Stereo Link control** – provides a choice of the original version stereo cross-linking (X-Link) or Independent L/R channel gain reduction. Stereo cross-linking helps prevent stereo image shifting while independent mode can produce somewhat higher output levels.

**D – Dither** – adds dither to the plugin’s final output, post output fader. Dither should only be used as a final step in mastering and/or when rendering output files to a lower bit resolution. Use the bit setting as appropriate for the output file bit depth and **make sure your track/bus output fader is set to 0dB**. Leave this control off when using the limiter on individual tracks in mixing. See additional notes on dither below.

**E – HPF** – turns on a Linear Phase High Pass filter at the input to the plugin. This control can be used to remove DC offsets and extreme low bass energy for improved sound quality and level.

**F – Gain** – adds gain to the input signal, pre-limiter. The “x2” control, when engaged, doubles the range of this control as displayed in parenthesis.

**G – Ceiling** – sets the maximum peak output level from the limiter. The “x2” control, when engaged, doubles the range of this control as displayed in parenthesis.

**H – Release** – sets the relative release time of the limiter. The release time is program dependent and varies with both the frequency and complexity of the input signal. Higher numbers are slower and lower numbers are faster. Release “A” and release “B” offer a choice of two different release envelope shapes and responses. Release “A” (legacy version 1 plugin) slows as it returns to unity gain while Release “B” returns to unity gain faster depending on the input signal level. Release “B” produces a slightly “louder” output level on some material. See additional notes about this control on the last page of this manual.



**I – Gain Comp** – when engaged, reduces the output level of the limiter in exact proportion to the Gain control amount. This control can be engaged to get a more “level matched” bypass. **Make sure to turn this control off before rendering unless going for a special effect/purpose.**

**J – ISP control** – turns on internal oversampling for Inter-Sample Peak detection. When engaged, the plugin oversamples the level detection sidechain at 8x for 44.1kHz and 48kHz sample rates, 4x for 88.2kHz and 96kHz sample rates and 2x for 176,400kHz and 192,000kHz sample rates.

**K – Atten Delta** – when engaged, sends the audio being reduced by the limiter to the outputs. **Make sure to turn this control off before rendering unless going for a special effect/purpose.**

**L – Output Fader** – sets the final output level of the plugin, pre-dither. Can be used to lower the output level of the plugin without affecting the amount of gain reduction dialed in by the Gain and Ceiling controls. This control can be used to quickly set new peak output levels for multiple masters and can be automated to provide fade ins/outs while maintaining proper dither levels.

**M – Bypass** – turns plugin audio processing on/off. Always use this bypass, rather than your DAWs “hard bypass”, for the most seamless transition.

**N – GUI Resize handle** – click and drag to scale GUI up/down by +/-50%. Double-click to reset to default size.

## CONTROL MODIFIERS

- 1) Hold down the Ctrl key while dragging or scrolling any rotary or slider control for fine resolution
- 2) Hold down the Alt (Win)/Option(Mac) key and then click on any rotary or slider control to reset that control to its default value
- 3) Double-click on any rotary or slider control to type in a control value.

## HOW TO USE Pristine Peaks

Pristine Peaks should be used as an “insert” for full effect on tracks and buses and should typically be placed as the very last processor in the FX chain.

**To set the Release time control:** with a track playing, crank up the input Gain control, or lower the output Ceiling control, to obtain large amounts of gain reduction as shown on the Attenuation meters. Adjust the Release time so that the limiter’s gain recovery occurs in-step with the music. Once this “sweet spot” has been located the limiting action will become very transparent. Multiples of that release setting (x2, x4, /2, etc.) will also usually sound good and can be selected depending on the desired result (faster release = louder/more aggressive while slower release = more overall leveling).

**When to turn ISP on:** ISP (Inter-Sample Peak) detection is typically only required when Pristine Peaks is used in the very last stage for final outputs (mastering). Engaging this control turns on oversampling in Pristine Peak’s level detector section which helps to predict the actual analog reconstruction peak levels in a D/A converter on playback. ISP detection can help prevent clipping in downstream playback of the audio file. ISP detection is typically not required when used on individual tracks or buses in mixing and should be turned off for reduced CPU load.

**Where to set the Ceiling control:** this is a matter of great debate and personal preference. When used in “ISP” mode the Ceiling can be set as high as -0.1dB and the track will typically be well presented on “lossless” audio playback systems such as Digital Compact Disk. When used in ISP-off mode the Ceiling should typically be set lower (i.e., -1.5dB) to ensure that clipping due to ISPs will not



occur in downstream playback. One of the biggest causes of ISPs in consumer playback devices is lossy encoding such as mp3. Setting the Ceiling to lower levels, and using ISP detection, can help to avoid distortion due to ISPs in those situations.

**When to turn HPF on:** Pristine Peak's input High Pass Filter is a high-quality linear phase filter that can be used to remove DC offsets and extreme low frequency ("subsonic") energy from the incoming audio. Filtering out this energy can greatly improve the transparency of the limiter by reducing "pumping" and "ducking" caused by energy that typically cannot be heard. RJ Studios chose to use a linear phase filter here because it performs this filtering without causing phase shifts that can create new peaks. This filter can be turned off to reduce CPU load in mixing if other EQ, filters, etc., are already being used on the track/bus.

**When to use Dither:** dither adds a special low-level noise to the digital signal that removes the "grittiness" of quantization at low signal levels. Dither is typically only required at the last stage of production (mastering) or when exporting audio to a lesser bit depth than the source audio. Pristine Peaks offers two different bit depths of dither, 16-bit and 24-bit, which should be selected based on the output format of your production (16-bit for 16-bit exports, 24-bit for 24-bit exports). In addition, two "flavors" of dither are offered including "flat" and "shaped". Flat dither is preferred by many as it sounds like constant, broad band, air/hiss. Shaped dither is a much "quieter" dither and has most of its energy in the high frequencies.

16-bit dither should be used when producing 16-bit output files (for Compact Disk, etc.) while 24-bit dither can be used for intermediate and high-resolution final outputs. Dither is typically not required on individual tracks or buses in mixing.

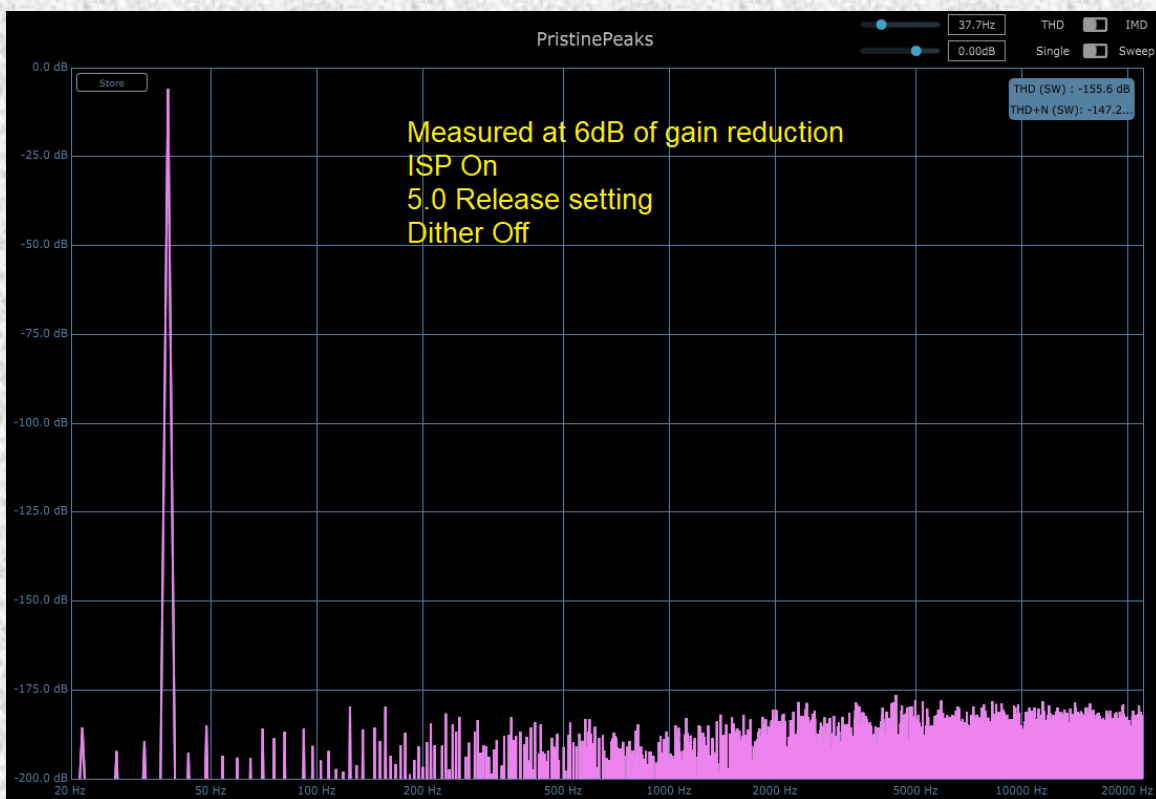
Dither is a precise signal referenced to 0dBFS. When using dither in a final master or export make sure Pristine Peaks is the very last processor in your FX insert chain and **make sure your output fader level is set to 0dB**. Set the Pristine Peaks Ceiling control to the desired final output level, e.g., -1dBTP, etc. Fade ins/outs can be created by automating the Output Fader control which maintains proper dither levels at the final output of the plugin.

**If you wish to create multiple masters at different True Peak output levels without changing the amount of compression dialed in by the Gain and Ceiling controls** – double-click on the Output Fader control and type in the desired output level. For example, set the Output Fader to 0dB for CD masters and then to -1.0dB for R128 masters, etc.

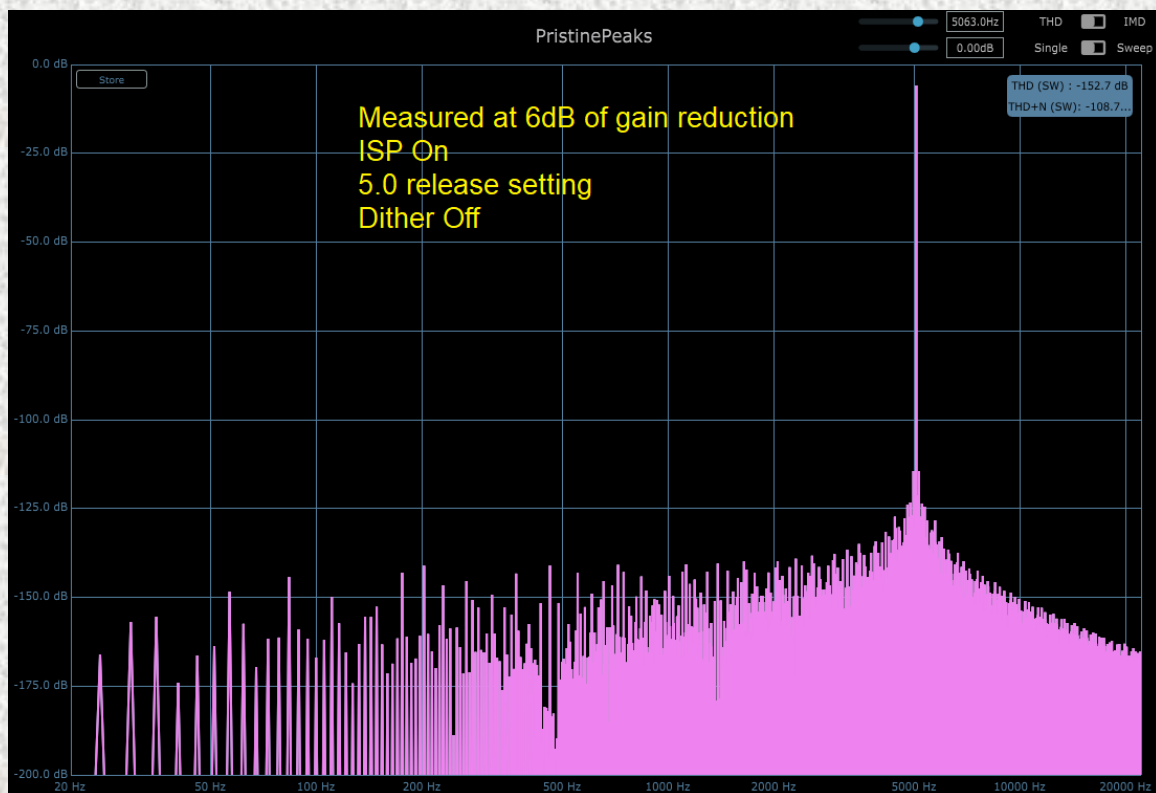
**Final Note:** Pristine Peaks is a very "clean" limiter that does not use saturation or clipping in its gain reduction processing. As a result, high loudness levels (less than ~7dB LUFS) will be hard to achieve. If high levels are desired, saturation and/or clipping plugins can be applied in the chain and should be applied ahead of Pristine Peaks. ISP mode is recommended in this case as saturation and clipping tend to generate ISPs which Pristine Peaks will then catch and clean up.

## What do we mean by “Ultra-Low” Distortion?

THD at low frequencies\*:



No aliasing of high frequencies:



Test plots from [DDMF's excellent "Plugin Doctor"](#)



**\*NOTE:** Even though Pristine Peaks produces very low steady state distortion it is a full band processor and *modulation* distortion can still occur. For example, if very fast Release times are being used Pristine Peaks will respond rapidly to low frequency material (such as kick drums) which can cause higher frequency material to modulate/duck/pump. Proper settings of the Release time and/or equalization of the source material can reduce or eliminate this side effect (if not desired).

## LICENSE INFO

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