

SPL PQ

Plugin Manual



Developed by Brainworx Audio in partnership with SPL electronics GmbH distributed by Plugin Alliance





The Hardware - King of the parametric equalizers

The PQ Mastering Equalizer is a fully parametric, dual-channel five-band equalizer.

The PQ Mastering Equalizer – Model 1540/1544 is a new revised edition of the well-known SPL PQ Mastering Equalizer – Model 2050.

Both units are based on our 120V Rail Technology. The new PQ features the same high-quality characteristics as the previous model.

All five bands can each be activated or deactivated and you got the possibility (for every single band) to separately switch between Constant Q and Proportional Q. This kind of circuit has not yet been achieved in any other equalizer.

Each channel can completely be activated or deactivated, thanks to Auto-Bypass, even automated in a freely selectable time frame.

Bypass of each band and constant Q of the left side can be controlled by the right side in Link mode.

Thanks to the 1/4 Gain-Switch, you can reduce a maximum increase or attenuation of the amplitude by the factor 3/4, which regulates the potentiometer from max +/-20 dB to +/-5 dB cut or boost. This gives you the possibility to perform small corrections, as common in Mastering or higher amplitudes in Proportional-Q mode.

Thanks to the detented potentiometers, a precise recall is very easy to realize. You can also adjust parameters Gain, Frequency and Q in 41 steps with the detented potentiometers.

The PQ Mastering Equalizer was designed, developed and manufactured in Germany.



The Plugin - best of both worlds

Brainworx' familiar "Extra Unit" adds features to this legendary EQ that cannot be found on the original analog units.

This retractable module includes Tolerance Modeling Technology (US Patent No. 10,725,727), M/S Processing, Mono-Maker, Stereo Width, THD, Auto Listen for all five bands and more, providing everything you need in the modern digital domain.



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120 Volt Technology

SPL's goal was to push analog signal processing to the limits. That's why we combined the best possible components with a high-grade optimized circuit design.

We have been using the in-house developed 120-volt technology - the highest-ever operating voltage used for audio applications - in all our products from the Mastering series for years. Some of the most highly respected Mastering studios today revolve around SPL consoles and signal processors from our Mastering series (Bob Ludwigs Gateway Mastering & DVD in the USA, Simon Heyworth's Super Audio Mastering in the UK, Galaxy Studios in Belgium, and the legendary Wisseloord in the Netherlands, for instance). The 120-volt technology is based on op-amps developed internally by SPL's co-founder and Chief Developer Wolfgang Neumann. The IRON features the most advanced generation of these op-amps. They boast better tech specs thanks to the thermal behavior optimization they underwent under the hands of Bastian Neu.

Ultimately, the supply voltage is key for the overall dynamic response of a processor. Voltage is to an electrical circuit what cylinder capacity is to an internal combustion engine.

You can't replace cylinder capacity with anything else, except more cylinder capacity.

120 Volt Technology - Diagram

These diagrams clearly show the advantages of our 120-volt technology in comparison to other circuits with a lower operating voltage. The direct relation between operating level and maximum level is fundamental for the classification: the higher the operating level, the higher the maximum level a circuit can handle. And since virtually all essential acoustic and musical parameters depend on this relation, a higher operating voltage also has a positive impact on the dynamic range, distortion limit and signal-to-noise ratio. The result is a clearly more laid-back and natural sound with less unpleasant coloring.

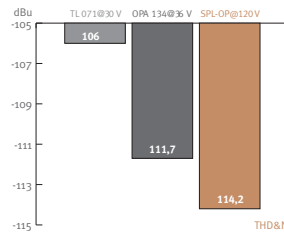
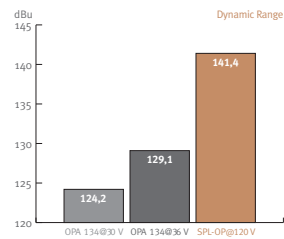
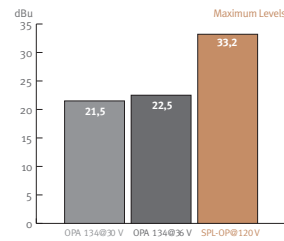
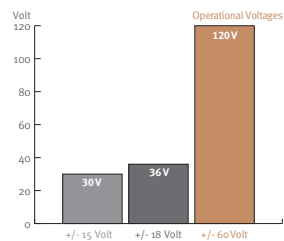
Do bear in mind that dB scales do not represent linear but rather exponential increases. A 3 dB increase corresponds to doubling the acoustic power, +6 dB correspond to twice the sound pressure level, and +10 dB correspond to twice the perceived loudness.





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When it comes to volume, the 120-volt technology exhibits a performance that is twice that of common components and circuits, in regard to maximum level and dynamic range, with values that are approximately 10 dB higher. THD measurements of the SPL op-amps show a difference of more than 3 dB compared to the OPA134 at 36 V — in terms of sound pressure level, that corresponds to an improvement of more than 50%.

The operating level most commonly used for audio equipment is 30 volts.





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1 Gain

The amplitude setting ranges from -20 dB up to +20 dB. This means that you can increase or attenuate the amplitude to a maximum of 20 dB. The maximum increase or attenuation also depends on the selected Q-Characteristic.

2 1/4 Gain

Thanks to the 1/4 Gain-Switch, you can reduce a maximum increase or attenuation of the amplitude by the factor 3/4, which regulates the potentiometer from max +/-20dB to +/-5 dB cut. This gives you the possibility to perform small corrections, as common in Mastering, in a very accurate manner. Thanks to the preciseness and sensitivity of the 1/4 Gain-Switch you can finely control and work on the sound material with the detented potentiometers.

3 Frequency

Each channel provides five frequency bands. All bands are fully parametric and can independently be activated or deactivated. The workable frequency range stretches from 10Hz to 24kHz.

Frequency Range:

- LF (Low Frequencies): 10 Hz to 330 Hz
- LMF (Low Mid Frequencies): 33 Hz to 1 kHz
- MF (Mid Frequencies): 128 Hz to 4,1 kHz
- MHF (High Mid Frequencies): 310 Hz to 10 kHz
- HF: (High Frequencies): 760 Hz bis 24 kHz

4 LF, LMF, MF, MHF, HF -Button (orange)

These buttons switch the 10 filter bands on (button lights up) or off (light off).

5 Q

You can adjust the bandwidth from 0.08 Q to 5,8 Q in Proportional-Q mode, 0,6 Q to 15 Q in Constant-Q mode – this maximum value allows to perform corrective applications with maximum precision in Constant-Q mode.



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6 Prop. Q -Button (blue)

Thanks to this button, each of the 10 filter bands can be set from Constant-Q mode (light off) into Proportional-Q mode (button lights up).

Proportional-Q mode / Constant-Q mode

Each frequency band constant of two fully parametric equalizers: one for constant Q mode and one for proportional (or variable) Q mode, selectable per band. The PQ is the first equalizer to offer both modes, endowing it with double equalization power for demanding corrective (Constant-Q) and creative applications (Proportional-Q).

In constant Q mode, the selected bandwidth remains unaffected by the amplitude setting, making it the best choice for corrective applications (e.g. to eliminate unwanted frequencies). In proportional Q mode, the amplitude is reduced as the bandwidth is raised and vice versa. With the smallest bandwidth setting, the maximum amplitude reaches $\pm 20\text{dB}$, while it is reduced to $\pm 2.8\text{dB}$ with the broadest bandwidth setting. The Proportional Q mode is better suited for creative, sound-shaping applications, as a bandwidth-related amplitude allows for sensible, musically suggestive operation – with raising bandwidths, higher amplitudes are increasingly less useful.

7 Channel Switch

You can activate or deactivate the right or the left channel with the two centrally located orange illuminated buttons.

8 Auto Bypass

To be able to make an objective judgment of the processed material, it is best not to have to be toggling between the original and processed signals by yourself, but rather have it done automatically. Plus, the fact that you do not have to move from the sweet spot and can concentrate better on the music to optimally assess the processing is a huge advantage.

The Interval control determines the time that needs to elapse before the compressor toggles between the processed and unprocessed signals. Hard left is the shortest setting. To increase the interval, turn the knob clockwise.



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TMT

The SPL PQ Mastering EQ offers 20 different EQ channels, made possible by TMT. TMT is Brainworx's (TMT, US Patent No. 10,725,727) "Tolerance Modeling Technology", originally found in the bx_console line of plugins. It takes the real-world tolerances of audio components found in audio circuits into account, and offers various channels of analog audio which have realistic variances in frequency response, time constants in dynamic sections, etc. The result is digital audio that sounds as analog as possible, whereas even the L/R channels of a stereo instance will react slightly different. For more information please check www.brainworx.audio

1 Stereo Mode

Toggles between using the same TMT channel for both units (Digital) and using two adjacent TMT channels (Analog).

2 Channels

TMT switches between 20 different channel strips. In a Stereo instance, two adjacent Channel numbers will be displayed. Each channel has its own, different character!

3 Random Channel

Whenever you instantiate a SPL PQ plugin on a channel, it will start with the Default setup, which is Channel 1 in a flat setting. You can now randomize a channel by clicking the Random Channel button.

4 Channel Link

This enables or disables linking of parameters in a stereo instance. When both parameters have different values and link is engaged, both parameter values remain unless one of them is touched.

5 M/S

Engages Mid/Side processing. When this is set to On, the Left Channel processes the Mid (Sum) of both channels and the Right Channel processes the Side (difference) of both channels.

6 Auto Listen

When Auto Listen is engaged: As long as the frequency- or q-control of a specific eq-band is clicked, everything outside of the filter's bandwidth is muted. This let's you listen to the effect of a single eq-band depending on its frequency and q. While listening, the gain is normalized.

Please check page 10 Modifier Keys.





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1 Input Gain

The Input Gain control sets the level at the input of the plugin. The range is from -10 dB to +10 dB.

2 HP Filter

High-Pass Filter for filtering out any unwanted frequencies in the low end. This is especially useful for mastering applications.

3 LP Filter

High-Pass Filter for filtering out any unwanted frequencies in the high end. This is especially useful for mastering applications.

4 Mono Maker

This tool is a critical component to several Brainworx processors, and it is an invaluable tool when mastering or tightening up a mix. Sweepable from 20 Hz to 20 kHz, this parameter folds the processed sound to mono at and below the frequency set. The most common setting is between 100-200 Hz, below which bass frequencies reside, where common practice deems that most sound should be mono. Other uses include folding an entire mix in order to check mono compatibility and avoid phase incoherency.

5 THD

Adds colorful Saturation and Density. The default setting is - 75dB. Use higher settings (up to -30 dB) for almost screaming distortion or dial down the THD to -120 dB for ultra-clean sound. It can be activated or bypassed individually by clicking the red button.

6 Stereo Width

Make your mix wider than it originally was by increasing the Stereo Width without losing the center of your recordings! If you notice your Correlation Meter (e.g. bx_meter) showing less than 90°, dial up the Mono Maker a bit to tighten up the low-end until acceptable levels are shown.

7 Output Gain

Adjusts the Output Level of the plugin. You can drive it down a few dB here to compensate for heavy processing.





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Top Toolbar

1 Undo / Redo

You can undo and redo changes you made to the controls of the SPL PQ plugin at any time. The Undo / Redo will work for as many as 32 steps. This makes experimenting and tweaking knobs easy. If you don't like what you did... just undo it.

2 Settings (A/B/C/D)

The Plugin offers four internal settings (A/B/C/D) which will be stored with every preset. So, one preset can contain up to four settings. You may use similar settings with more or less compression in one setup / preset. Now, the SETTINGS can be automated in your DAW! This way it's possible to use different sounds for your lead vocals or drums in various sections of the song. Automate the A/B/C/D settings, and you can still tweak knobs of the individual settings without overriding multiple parameters in your DAW, which would be time-consuming.

3 Copy / Paste

To set up variations of similar sounds you don't have to dial in the settings several times. Let's say you like your setting A and want to use the same sound, just with less compression, as setting B.

- Simply press Copy while you are in setting A.
- Switch to setting B by pressing 'B' in the settings section.
- Press PASTE, now setting B is identical to setting A.
- Reduce the compression on the B setting.

Now you can switch between A & B and decide which one sounds best or automate different settings for various sections of your session.

4 M/S Monitoring (for Stereo Channels only)

Solo M: Solos the Mid (Sum) signal being processed by the plugin.

Solo S: Solos the Side (Difference) signal processed by the plugin.

6 UI

Switches between three different User Interfaces:

RED, BLACK and ALL BLACK.

- The icon closes and opens the bottom panel containing the Brainworx's plugin only features.



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Bottom Toolbar

1 PA Logo

Clicking the Plugin Alliance logo takes you to the Plugin Alliance website via your web browser, that's if your computer is online.

2 License Type

The toolbar displays information about the type of license you're running: Trial licenses will be displayed along with the number of days until expiration; there is no note for full licenses as these are unlimited.

3 \$ (Icon)

If you are using a demo / trial version of our products, you can always click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. This is where you can easily purchase a product without having to look it up on our website.

4 Key (Icon)

Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB Flash drives.

5 ? (Icon)

Clicking the ? icon opens up a context menu that links to the product manual PDF, as well as other helpful links, e.g. to check for product updates online. You must have a PDF reader installed on your computer to be able to read the manual.

System Requirements & FAQ (Links)

For latest System Requirements & Supported Platforms

<https://www.plugin-alliance.com/en/systemrequirements.html>

Particular details for your product

<https://www.plugin-alliance.com/en/products.html>

Installation, Activation, Authorisation and FAQ's

<https://www.plugin-alliance.com/en/support.html>





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Modifier Keys

Tested with Logic Pro X, Protools, Cubase and
Presonus Studio One Mac/Win.

AU

Fine Control	= Shift
Jump between Default / Last Setting	= Option
Output Link	= Command

VST / VST3

Fine Control	= Shift
Jump between Default / Last Setting	= Command (Mac), Ctrl (Win)
Output Link	= Option (Mac) / Alt (Win)

AAX

Fine Control	= Command (Mac), Ctrl (Win)
Jump between Default / Last Setting	= Option (Mac), Alt (Win)
Output Link	= Shift





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