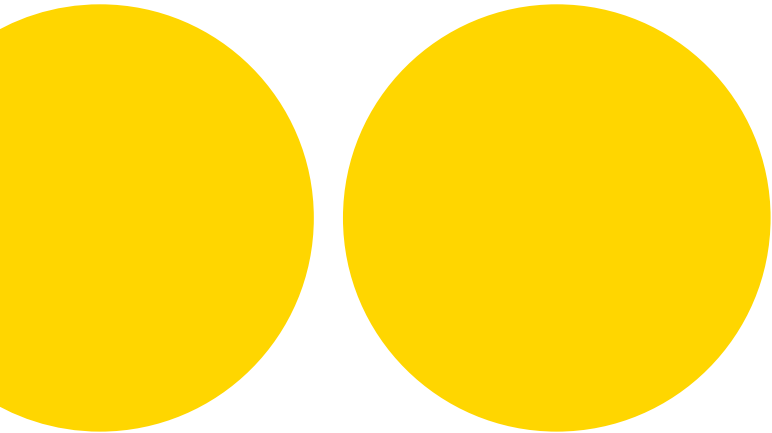


Polyend Press Essentials

A Collection of Essential References
for The Polyend Press

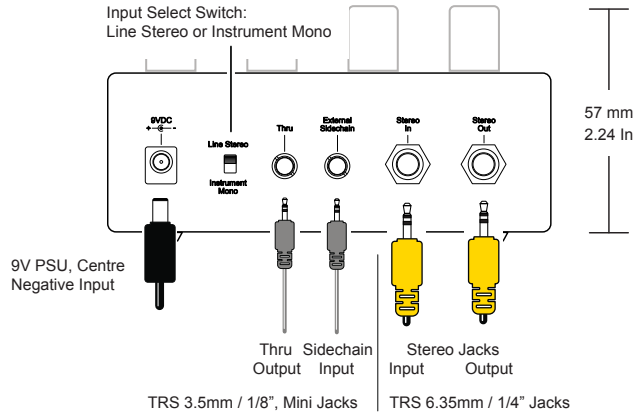


Overview

Press is a fully analog stereo compressor that combines features usually exclusive to professional studio equipment with modern VST controls. It offers the tight, natural response of classic analog rack units while incorporating unique controls and features not found in other pedals. Press is an advanced compressor that works anywhere in the signal chain, from finalizing and limiting to adding control after gain staging or taming wild modulation and time-based effects. Dial in the exact amount of desired compression with Ratio and Threshold controls. Dedicated attack and release knobs can create aggressive punch or subtly tame peaks. Roll off the mix knob for New York-style compression to blend the dry and compressed signal, and add

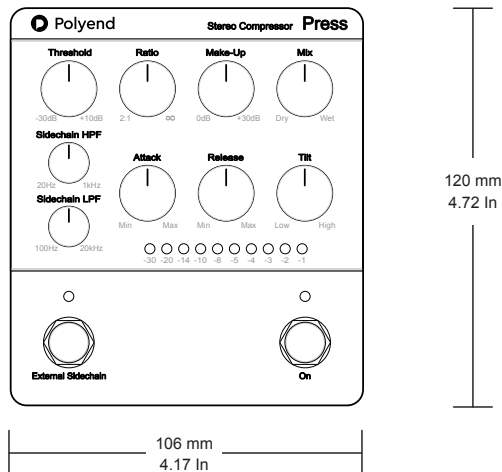
some color with the tilt control to shift the wet signal's EQ balance across the low and high frequency range. Press offers unique stereo sidechain control that cannot be found in another analog compressor pedal. The high and low pass filters work on either the Stereo input or the external stereo sidechain thru. This allows for precise control of the sound triggering the sidechain by stopping problem frequencies from triggering the gain reduction circuit. Use the LPF to filter out the high end of a bass guitar or the HPF to remove the boom from a kick drum to sculpt your sound in ways that were not possible in analog pedals before. Even with all these features the press is a knob-per-function compressor designed to be simple to set up and operate.

Hardware Overview



Power Supply is not included. Use a standard pedal model, 9V DC, 350mA, Centre Negative. Impedance for input in Line mode is 20kΩ and 1MΩ in Instrument mode.

Weight
600 Grams



Control Overview

Ratio Control
Ratio setting for amount of gain reduction. Range from a gentle 2:1 up to Infinity.

Threshold
dB Level at which the compressor starts to affect the audio. -30dB to +10dB.

Make-Up
Make-up gain applied to all of the audio. Range 0dB to 30dB.

Mix
Mix of Dry, Uncompressed and Wet, Compressed audio output.

Sidechain HPF
High Pass Filter. Filters out low end frequencies in sidechain level detection. 20kHz to 1kHz.

Sidechain LPF
Low Pass Filter control for sidechain input. 100Hz-20kHz.

Tilt
Shifts the EQ balance to boost highs / cut lows or boost lows / cut highs.

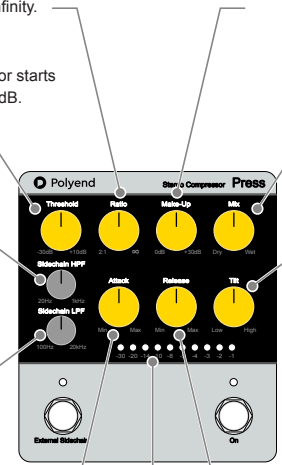
Attack
Envelope Attack time governs how fast compression kicks in.

Release
Envelope release sets the time compression lets go.

Gain Reduction LEDs
Gain reduction meter. -1 to -30dB of gain reduction displayed as a bar graph.

External Sidechain
Introduces the sidechain input audio into the compressor engine. LED lit when sidechain is active.

On
Compressor is active when On, LED Lit. No compression applied. When set to off, LED Unlit.

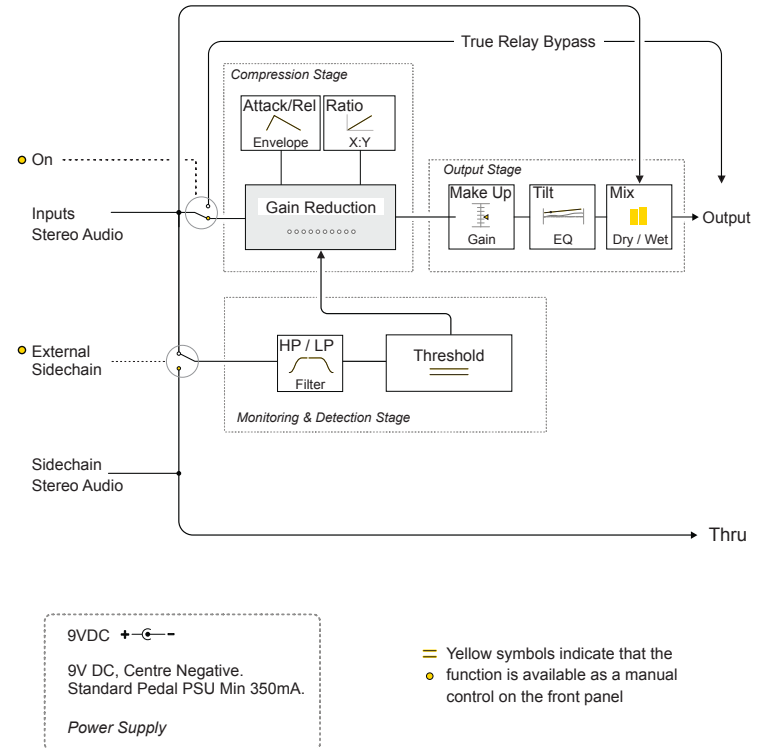


Control Details

Control	Function	Description
On	CC	Compressor is active when On. LED is lit when on. Compressor is bypassed when off and removes the compressor completely from the audio chain. The LED is unlit when off.
External Sidechain	Switch	Sends the sidechain audio input to the compressor detection circuit when On. Indicates Sidechain as On when the LED is lit. This audio will be used to trigger the compressor.
Threshold	Knob	Adjusts the threshold level in dB. This is the level at which the compressor will start to implement gain reduction. Range is -30dB to + 10dB.
Ratio	Knob	Adjusts the ratio of the compressor. This governs how much gain reduction is applied for every dB above the threshold. Range starts at a gentle 2:1 ratio. Turn clockwise for a more aggressive compression. Infinity:1, fully anti-clockwise operates like a limiter.
Make-Up	Knob	Gain applied after compression to adjust the overall level of the audio. This is usually applied to compensation for the compressed gain reduction and re-balance the overall audio level and loudness. 0-30dB
Mix	Knob	Balances the mix of output audio between the original dry audio level and the wet, compressed audio. This applies parallel or NY Compression techniques to mix dry and wet signals.
Attack	Knob	The envelope controls how fast the compressor reacts when crossing the threshold. The attack time determines how fast compression kicks in. Range is stated as Min-Max, representing 0.1ms to 30ms. Adjustment by ear is recommended to balance between the punch and softness of the application.
Release	Knob	The envelope controls how fast the compressor reacts when crossing the threshold. The release time determines how long it takes for compression to subside when released. Range is Min-Max, representing 1ms to 1000ms. Adjustment by ear is recommended.
Tilt	Knob	This adjusts the EQ - Frequency balance between the highs and lows. Clockwise the EQ tilts to boost highs and cut lows. Fully anti-clockwise, boosts lows and cuts highs. The tilt pivot point is 450Hz.
Sidechain HPF	Knob	External sidechain audio passes through a filter stage before reaching the compressor detection. This control adjusts the 20Hz-1kHz range to affect the High Pass Filter cutoff. Fully clockwise for no filtering.
Sidechain LPF	Knob	External sidechain audio passes through a filter stage before reaching the compressor detection. This control adjusts the 100Hz-20kHz range to affect the Low Pass Filter cutoff. Fully anti-clockwise for no filtering.

Signal Path

The diagram below is an illustration of the signal flow of Press. This is not intended to be an exact schematic but is useful as a guide to understanding the routing and functions in Press.



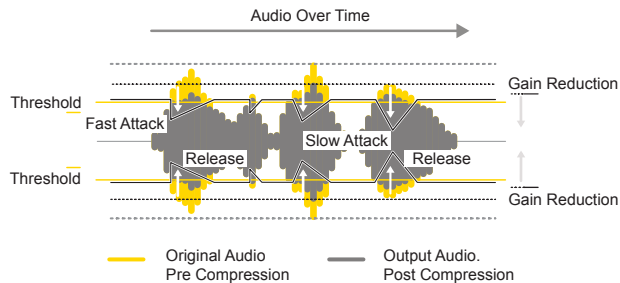
The Press compressor operates over an audio frequency range of 20Hz to 20kHz which is the typical range for the human ear. A filter is used to remove certain frequencies in the audio input to the detection circuit to ensure that only the desired audio ranges trigger the gain reduction. If you have the HPF at Max and LPF at Min you aren't going to get sound at all.

Principles of Audio Compression

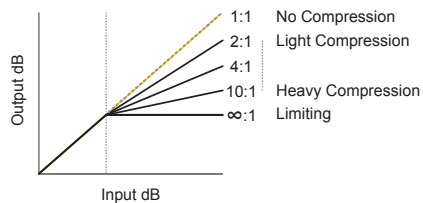
Compression is an audio production technique used to control the dynamic range of an audio signal, taming its peaks, increasing the overall loudness and creating impact. With the right features it can also add musical interest to arrangements for example ducking audio when a kick drum hits. A compressor can offer benefits at the final production stage when mixing or as part of the sound design and when performing.

A compressor starts to work when a defined audio threshold is exceeded. Often this will be at the peak points in the audio. The compressor will apply gain reduction to the parts of the audio that exceed the threshold. Gain reduction is based on a ratio where every XdB over the threshold will give a reduced output of YdB. The ratio X:Y can be adjusted. for example, with a gentle ratio of 2:1, every 2dB over the threshold will give 1dB of output. 10dB over gives 5dB output. So the higher the first number of the ratio, the more aggressive the compressor and the more gain reduction is applied. A setting of 'infinity' fully limits the level at the threshold.

Compression



Ratios

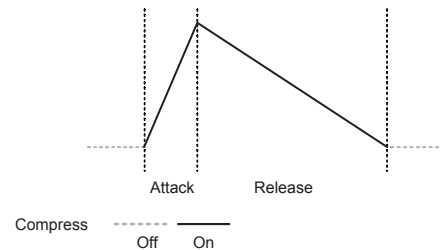


Attack & Release refers to how quick the compressor kicks in and how slow it cuts out is normally handled by an envelope. Some compressors have a 'knee' option to manage this. Press has an adjustable attack time and release time to control the compressor speed and hence manage the behavior of the compressor.

The gain reduction kicks in when the threshold is exceeded and any other audio below the threshold is unaffected. This reduces the dynamic range overall. To increase loudness and restore the desired level the overall gain of the audio can be adjusted. This is called make-up gain. A general rule of thumb is to aim to increase make-up gain by the gain reduced during compression. Additionally mixing the compressed audio along with the uncompressed is also a useful technique, often called parallel or New York compression.

A compressor monitors the incoming audio and reduces its dynamic range. However an alternative audio signal can also be used in the level detection. The compressor can also monitor the external sidechain audio signal, and manage the gain reduction amount based on this input. One creative example is to make space in a mix where the bass signal is compressed and a sidechain from a kick drum 'ducks' the bass audio at the point the kick drum hits. This is an old technique dating back to the 1930's but came to prominence with the recent French house scene.

Gain Reduction Envelope



Sidechain

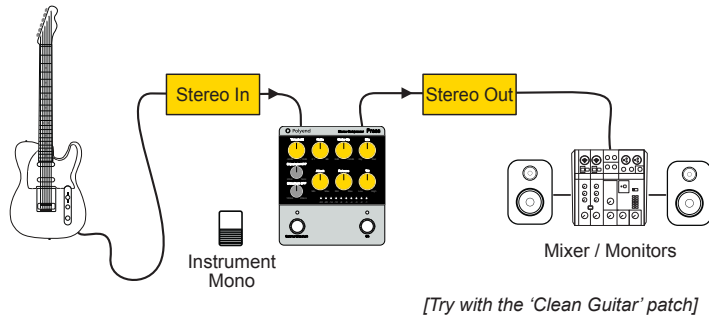


Application Examples

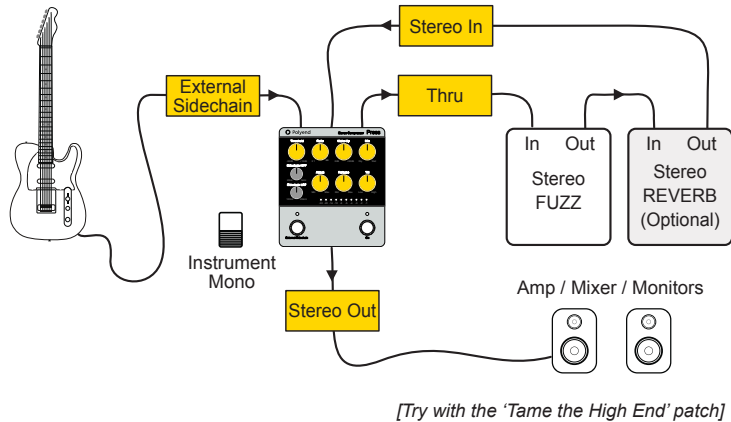
Press is equally at home in a guitar pedal board or a desktop synthesizer setup. It is often suggested to locate a compressor at the front of the chain, usually due to technical limitations. However, Press is a fully stereo, versatile device and can be placed in a variety of positions in the signal chain, each delivering different sound characteristics and creative opportunities.

Standard Guitar Chain

■ Press I/O connection

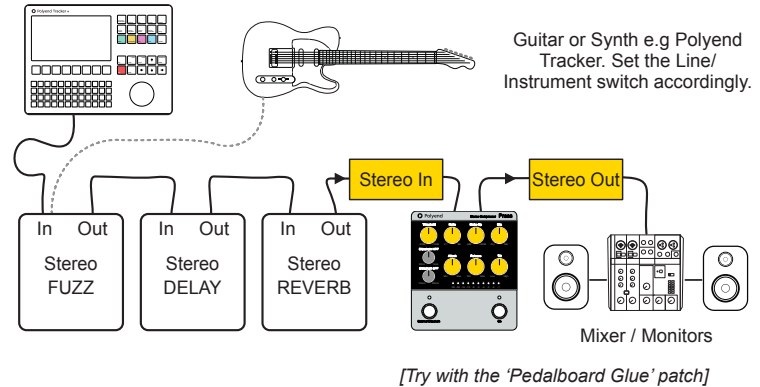


Fuzz Compressed by Clean Tones (excluding reverb)

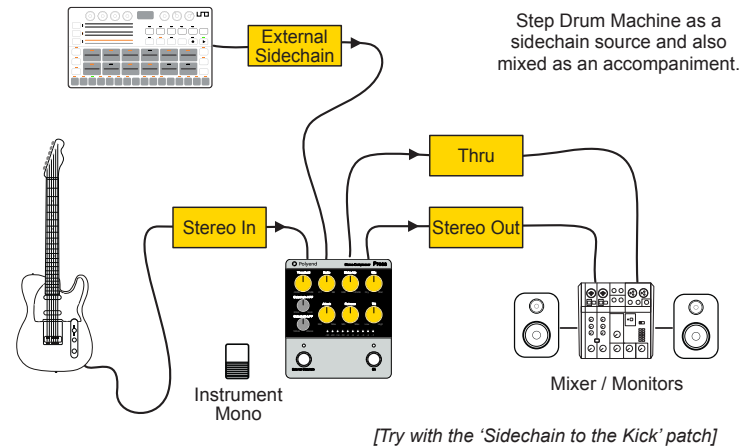


End of Pedal Chain

■ Press I/O connection

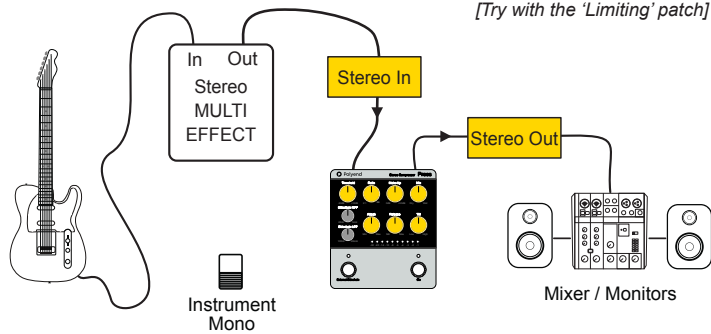


Sidechain Pumping

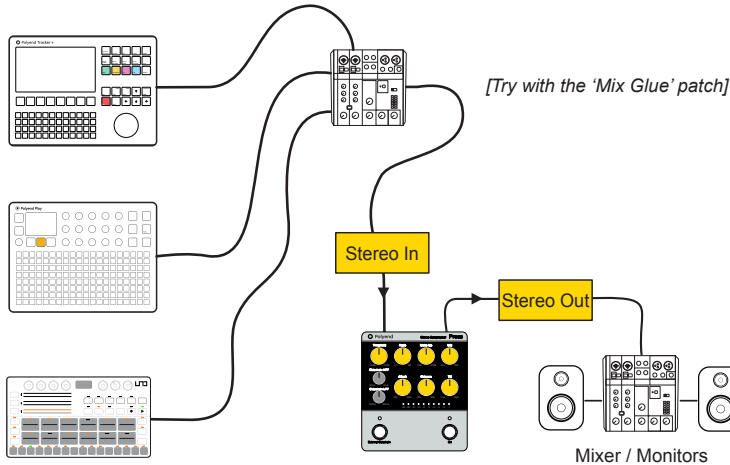


Finalizer / Limiter

■ Press I/O connection



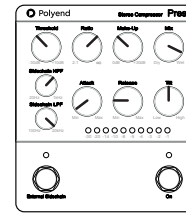
Final Mix Compression



Patch Settings Examples

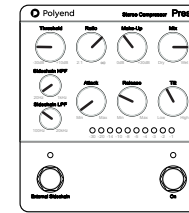
To get started with the patch, i.e. parameter configurations for setting up each application, some examples are provided.

Tame the high end



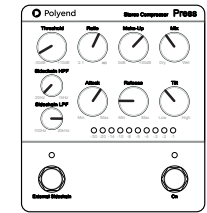
Tame the high end - HPF turned up to let low notes come through without triggering gain reduction. Great for synths or guitars.

Sustain the Low End



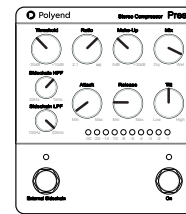
Engage the LPF to filter out the high frequencies from the sidechain level detection. This allows for only low notes to trigger the compressor. Let some of the dry signal through by rolling off the mix knob.

Drum Bus



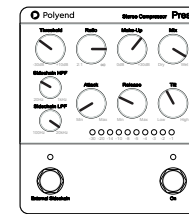
Roll off the mix without phasing issues that can be introduced in VSTs. Add a high end

Pedalboard Glue



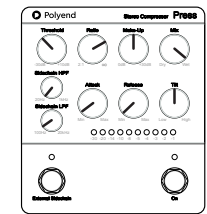
When running many effects the volume after your chain can get unpredictable. Add the compressor last and glue everything together in stereo. Use the HPF to avoid over-compressing the low end

Sidechain to Create Space



Prevent frequencies from overlapping on 2 instruments with similar frequency ranges by applying sidechain compression, ducking the primary signal when the instrument input to the sidechain triggers the gain reduction. For example a synth with a similar frequency spectrum to a guitar could be routed to the sidechain input before the mixer.

Sidechain to the Kick



Send your drums into the sidechain insert. Turn up the LPF to get only the bass of the kick drum to trigger the side chain compressor. Adjust the Threshold and Ratio to taste for a more extreme sidechain effect.

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