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ECM-519 compressor

user manual

Introduction

We've strived to design a feedback FET compressor with personality, that can excel where plug-ins fall short and seamlessly integrate with your DAW to add some often needed analog warmth. The pleasing FET harmonic distortion, and some transformer saturation options really help to add that analog character.

This compressor is extremely versatile. It's great on aggressive time settings and applying a lot of gain reduction, but can also be extremely transparent. The auto modes engage two completely separate side-chain circuits that change the way the compressor behaves, giving you sounds that aren't possible with conventional attack and release settings.

True bypass switching makes meaningful comparisons against the original signal quick and easy, and parallel compression is only a knob twist away. Happy squishing!

- Jason Fee

The Basics of Compression

Compression works by narrowing the difference between high and low audio levels by reducing the gain of any signal over the **threshold**. By doing this at specific time constants, compression can add consistency, sustain, punch, detail, definition and personality to your tracks.
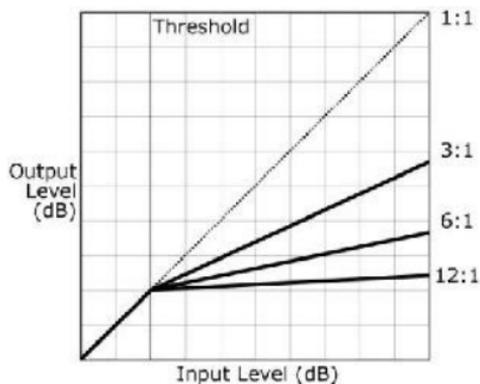
The **ratio** determines how much gain reduction will be applied to the signal once it crosses the threshold. At a 3:1 ratio, for every 3dB of input signal above the threshold, there will be 1dB of output signal. A 12:1 ratio would output 1dB for every 12dB of input signal, etc.

Attack controls how quickly the gain reduction will begin after a signal has crossed the threshold. **Release** controls how long it takes for the compressor to return to its initial level after the signal drops below the threshold.
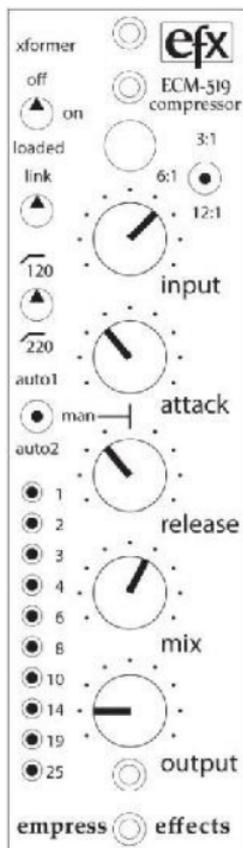
Quick Start Settings

Vocal Tracking

Drum Buss Smashing

This setting is great for controlling the dynamics while tracking. The auto mode handles the attack and release times, so setup is super fast.

This adds a ton of character to your drum buss. Set the input level for 25dB of reduction. Mixing in some dry signal keeps transients intact.

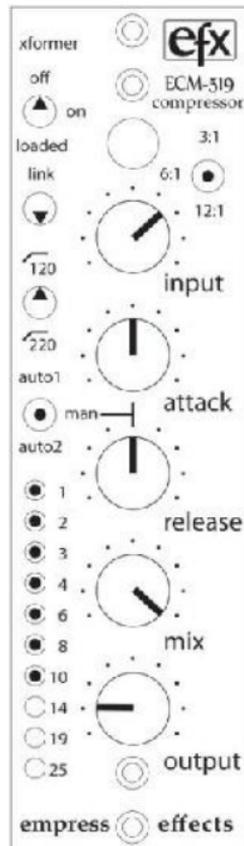# Quick Start Settings

Acoustic Guitar

Extremely natural sounding on acoustic guitar. This setting will control the dynamics without feeling squashed.

Bass

This will lock the bass in the mix, giving a solid bottom end that is very controlled. It will also even out any inconsistencies in the playing.

xformer: Select how the output transformer is used in the circuit.

Off: The output transformer is not used and the output is balanced with active electronics. Very clean sound with the largest bandwidth.

On: Inserts the output transformer in the circuit. Smooths transients providing warmer top end and thicker low mids.

Loaded: Loads down the output transformer so it saturates easily. Provides a warm, vintage feel. Great for controlling cymbals and sibilance in vocals.

link: Links 2 compressors to form a stereo pair. See "Using the Link Function" for details on connecting the units.

side chain hpf: The high-pass filter cuts out low frequencies in the side chain below either 120Hz or 220Hz.

manual / auto: Control the attack and release times manually or with one of the two auto modes: *

auto1: Great for dynamic control. Use when tracking to control peaks or to smooth out a mix.

auto2: Attack is more open making things sound big and present.

GR meter: This 10 segment meter shows the amount of gain reduction being performed by the compressor at any given time.

At a Glance

bypass: Use to engage/bypass the unit. It will illuminate when the compressor is in the signal chain. It is true bypass and will pass signal when bypassed even if the unit is powered off.

ratio: Determines the compression ratio for signals above the threshold.
- **3:1** - Gentle and transparent.
- **6:1** - More aggressive compression.
- **12:1** - Limiting.

Note the threshold raises slightly with higher ratios so that the output volume is more constant when switching ratios at typical gain reduction settings. This makes comparing the effect of different ratios more accurate.

input: Controls the level of the signal entering the compressor. The unit has a fixed threshold so higher input settings will result in increased amounts compression.

attack: Controls the time constant which affects how quickly gain reduction acts after the signal has exceeded the threshold. (50us - 50ms) *

release: Controls the time constant which affects how quickly the gain reduction decreases after the signal drops below the threshold. (50ms-1s) *

mix: Blend between wet(compressed) signal and dry(uncompressesed) signal. Counter clockwise is dry, clockwise is wet.

output: Controls the overall output level leaving the compressor.

*The attack and release controls are not used when the compressor is in auto mode. Switch to manual mode for control over attack and release.

efx

ECM-519 compressor

3:1
6:1
12:1

input

attack

release

mix

output

effects

Using the Link Function

The link function allows two ECM-519s to work as a stereo pair. The front panels of both linked units should be set the same to maintain the stereo image and the link switch needs to be set to 'link' on both units as well.

Connecting the link: there's two ways to connect the link, either through your 500 series rack enclosure (if your 500 series rack supports linking) or through the supplied link cable using the link connector.

Tip: If you want the absolute closest matching we recommend sending the same mono signal to both units. Return them to your console/daw and invert the phase of one channel, and blend both signals to mono so the signal nulls, then adjust the output controls for most cancellation.

Linking through the cable is always engaged. If you'd like to link using the enclosure set the *'Link through rack'* dip switch to the *'on'* position. By having this dipswitch off (default), the unit won't interfere with any other units you may have linked in your rack. (Typically, racks link with pin 6 on the card edge connector).

High Pass Filter

The high pass filters cut out low frequencies in the side-chain below either 120hz or 220hz. Good uses for this would be:

- Engaging the 120hz filter on bass will allow you to smooth out the mid-range without over-compressing the lower notes.

- The 220hz filter is useful on instruments like chugging guitar or other low mid instruments to avoid the pumping effect.

Auto Modes

The auto modes react to the audio coming in and modify the attack and release in real-time depending on what the music's doing. In each auto mode, there are 2 detectors that run in parallel. One with really fast time constants at a higher threshold that reacts primarily to peaks, and a slower detector, with a lower threshold to smooth the overall signal. There is also some frequency compensation in these detectors which changes the ratio slightly depending on frequency. This allows the auto modes to provide extremely transparent compression that isn't possible with traditional attack and release controls.

Auto mode 1 : This mode is great for general dynamic control. It can be used while tracking vocals to control peaks and smooth out the overall level, without nasty artifacts. Also, it works great for sitting things in a dense mix, but still allowing them to breathe.

Auto mode 2 : This is great on acoustic guitar. The attack is more open and it makes things sound big and present without squashing the transients too much. On individual sources it's good for bringing them forward in a mix and even works well on a mix buss to add some overall punch.

Xformer Loading

The compressor is equipped with an output transformer that can be switched in and out of the circuit.

Off: In this mode the unit runs with an electronically balanced output. It is very clean and provides the largest bandwidth.

On: This inserts the output transformer in the circuit. It is pretty clean sounding but you'll start to notice a smoothing of transients providing a warmer top end, and a slightly thicker low-mid from slight saturation in the low frequencies.

Loaded: In this mode the output transformer is loaded down so it saturates easily. This really smoothes out the transients, and provides a vintage feel. It's amazing for controlling cymbals in a drum buss or for taming sibilance in vocals.

Tip: The transformer is at the very output of the unit. So if you'd like to add the transformer sound without any compression, you can run with completely dry mix to do this.

Tip 2: The Output control on the front panel also controls how much level the transformer sees, so turning up the output will provide more saturation.

Specifications

Input Impedance:	48kΩ
Output Impedance:	50Ω (600Ω with x-former)
Frequency Response (-3dB):	10Hz – 35kHz
Distortion:	Varies based on gain reduction
Noise:	Varies with settings
Output Level:	Up to +22dBu
Input Level:	Up to +22dBu
Required Current:	120mA per rail.
Attack Range (manual mode):	50us - 50ms
Release Range (manual mode):	50ms - 1s