



NUKE MK1

Dynamics. Refined.

USER MANUAL

Version 1.1.4
Side Key System / sidekey.fr
Made in France



INTRODUCTION

Nuke MK1 is a precision feedback compressor engineered for audio professionals who demand complete control over dynamics without compromising musicality.

Inspired by the behavior of classic analog feedback compressors, Nuke MK1 integrates a complete processing chain into a single tool: feedback-topology compression, detection-chain (sidechain) equalization, a soft saturation stage with real-time distortion metering, and an output limiter. Each section of this manual precisely describes the operation, the range of every control, and offers concrete usage tips.

General Architecture

Nuke MK1's interface is organized into three processing sections, displayed top to bottom in the plugin, plus a monitoring header:

- **FEEDBACK CORE:** the main compressor (feedback topology)
- **CONTROL ROD:** the detection-chain equalizer (sidechain EQ)
- **THD VALVE:** the soft saturation stage (soft clip) and limiter

The header groups the AZ-5 master switch, the A/B comparator, the needle VU meters (Gain Reduction / Output) and the IN/OUT diode level meters. Each section below comes with an annotated screenshot: the numbers refer to the list just below the image.

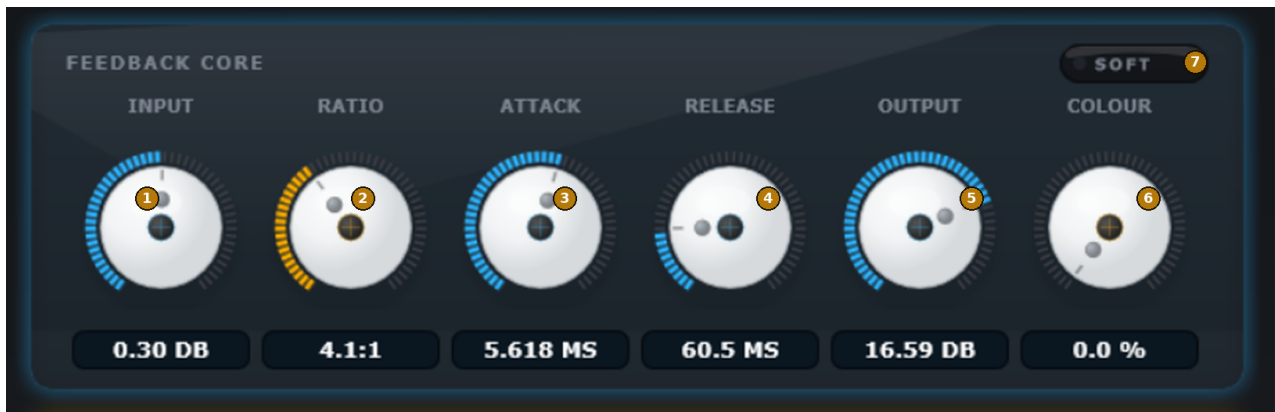
HEADER AND MONITORING



- 1 **AZ-5** – master switch: turns the entire processing on/off (full bypass).
- 2 **Nuclear logo** – animates (glitch) on every clip detected at the input or output.
- 3 **A/B switch** – switches between 2 independent configurations of all parameters.
- 4 **Switchable gauge** – shows IN, GR (Gain Reduction) or OUT depending on the button chosen (see 5).
- 5 **IN / GR / OUT buttons** – choose what the left gauge (4) displays.
- 6 **Output gauge** – always shows the output level, regardless of the choice made in (5).
- 7 **Gain Reduction row** – visual history of the current gain reduction, from 0 to 24 dB.

FEEDBACK CORE: THE COMPRESSOR

The heart of Nuke MK1 is a **feedback-topology** compressor: unlike a classic feedforward compressor, the detector listens to the signal *after* compression rather than before, producing a smoother, more musical behavior characteristic of vintage analog compressors.



- 1 Input** – drives the signal level entering the detector.
- 2 Ratio** – 9 stepped positions, up to the extreme NUKE position.
- 3 Attack** – reaction time to a level increase.
- 4 Release** – return time to rest after compression.
- 5 Output** – output gain, compensates for the applied gain reduction.
- 6 Colour** – harmonic coloration, adds analog character.
- 7 SOFT** – widens the compression knee curve for a more gradual compression.

Parameter	Range	Default	Description
Input	-36 dB to +36 dB	-2.29 dB	Drives the signal level entering the detector: you push the signal, not the threshold, the way a Distressor does.
Ratio	1.1:1 to 20.1:1, then NUKE	6.1:1	9 stepped positions: 1.1 / 2.1 / 3.1 / 4.1 / 6.1 / 8.1 / 10.1 / 20.1:1, then the extreme NUKE position (near-limiter ratio, nuclear icon).
Attack	0.05 ms to 40 ms	5.62 ms	Reaction time to a level increase.
Release	50 ms to 3000 ms	254 ms	Return time to rest after compression.
Output	-36 dB to +36 dB	+6.21 dB	Output gain, compensates for the applied gain reduction.
Colour	0% to 100%	0%	Harmonic coloration (2nd/3rd order), adds analog character.

SOFT Switch (Soft Knee)

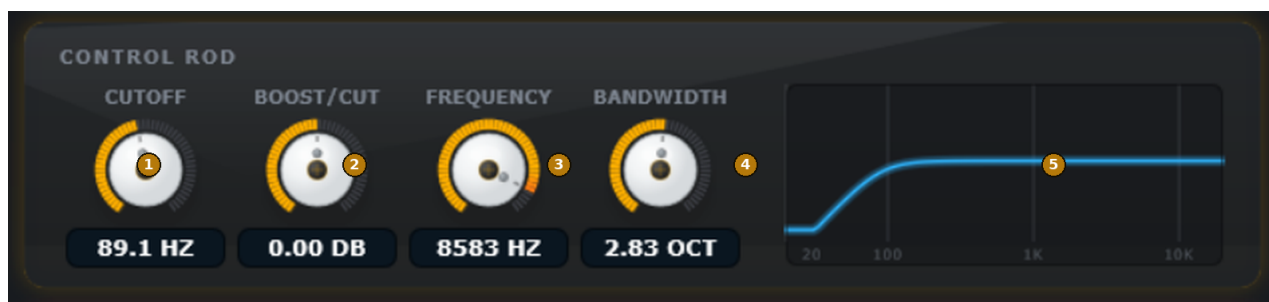
The SOFT button widens the compression knee curve across all ratios. Once enabled, the transition between uncompressed and compressed signal becomes much more gradual and gentle, similar to an API 2500-style compressor in "soft" mode, particularly useful for dynamic sources (vocals, mix buses) where an abrupt transition would be audible. Disabled by default.

USAGE TIPS

Nuke MK1 is a **feedback** compressor: its strength isn't absolute transparency, even though it's entirely possible to make it transparent with the right settings. On **drums**, it's interesting to apply a noticeable gain reduction (-16 dB or more), with a very short release (around 50 ms) and a relatively long attack: this combination lets transients through while squashing the body of the signal, for a punchy, cohesive result typical of feedback compressors on a drum bus.

CONTROL ROD: SIDECCHAIN EQUALIZATION

Control Rod is an equalizer placed exclusively on the compressor's **detection chain** (sidechain): it never affects the main audio signal. Its role is to shape what the detector "hears," deciding which frequencies trigger more, or less, compression. The graph displayed shows, in real time, the response curve of this equalizer (not of the audio signal).



- 1 Cutoff** – high-pass filter on the detection chain.
- 2 Boost/Cut** – amount of the parametric filter.
- 3 Frequency** – center frequency of the parametric filter.
- 4 Bandwidth** – bandwidth (Q) of the parametric filter.
- 5 Response graph** – real-time visualization of the sidechain equalization curve.

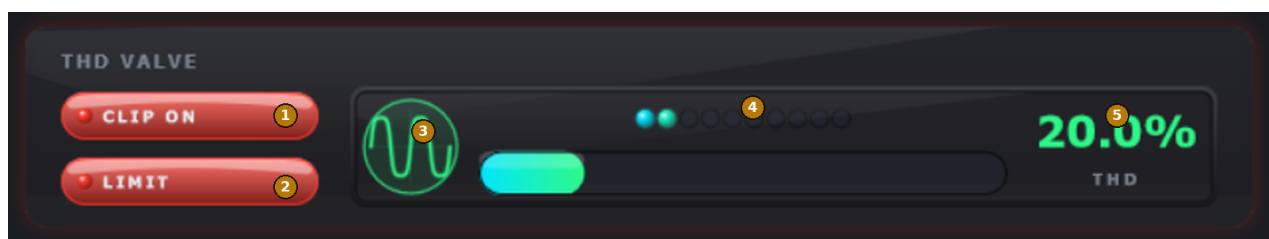
Parameter	Range	Default	Description
Cutoff	20 Hz to 640 Hz	20 Hz	High-pass filter on the detection chain: attenuates low frequencies before they can trigger the compressor.
Frequency	40 Hz to 12,000 Hz	650 Hz	Center frequency of the parametric boost/cut filter below.
Boost/Cut	-18 dB to +18 dB	0 dB	Amount of boost or cut applied at the parametric frequency.
Bandwidth	0.1 to 5.4 octaves	1.8 oct	Bandwidth (Q) of the parametric filter: narrow for surgical action, wide for a gentler effect.

USAGE TIPS

In **mastering**, it's very interesting to play with the Cutoff around 90 to 150 Hz: the detector then ignores more of the low end, which lets the bottom of the spectrum breathe without it excessively triggering compression. On **drums**, the Cutoff prevents the "pumping" effect caused by low frequencies (kick, bass) that would otherwise trigger the compressor excessively and create unwanted audible breathing.

THD VALVE: SOFT SATURATION

THD Valve is a soft saturation (soft clip) stage independent of the compressor. It can be enabled even when the Feedback Core section isn't actively compressing, for use as a standalone saturator/limiter at the end of the chain.



- 1 **CLIP ON** – enables the soft saturation stage (tanh curve).
- 2 **LIMIT** – enables a true-peak brickwall limiter, set at -0.5 dBFS.
- 3 **Oscilloscope** – circular visualization of the saturated waveform.
- 4 **Diode row** – quick visual read of saturation intensity.
- 5 **THD reading** – harmonic distortion rate, expressed as a percentage.

Control	Type	Description
CLIP ON	Switch	Enables the soft saturation stage (tanh curve).
LIMIT	Switch	Enables a true-peak brickwall limiter set at -0.5 dBFS, in addition to the soft saturation.
THD reading	Display	Harmonic distortion rate displayed in real time, expressed as a percentage (%).

USAGE TIPS

If you use the Soft Clip, it's recommended to enable **both** CLIP ON and LIMIT: the saturation level is then controlled from the Output knob of the compressor (Feedback Core section), not from this module. You can use THD Valve without the compressor actively compressing. If you're using another compressor upstream of Nuke MK1, make sure to check on the Gain Reduction meter that Nuke MK1 isn't itself compressing, if only the THD module is of interest to you. **Warning:** the THD reading only measures saturation produced by Nuke MK1 itself. Any saturation present upstream (before the plugin's input) is not accounted for in this reading.

ABOUT



Nuke MK1 is developed by **Side Key System**. At Side Key System, calibration is not a final adjustment, it is part of the engineering process itself. Every tool is carefully designed, measured, tested and calibrated with meticulous attention to precision, stability and measurement consistency.



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