

CREST FACTOR 9

User Manual

STUDIO9 PLUGINS



1. Introduction

CrestFactor9 is a brick-wall limiting plugin from Studio9 Plugins, built for mixing and mastering engineers who need to control peak levels without losing the life and punch of a mix. At its core it combines a gentle, RMS-based low-level gain stage with a fast, look-ahead limiter, so quiet passages can be brought up while transients are caught cleanly before they clip.

What sets CrestFactor9 apart is its continuous crest factor monitoring: rather than simply showing a gain reduction meter, the plugin tracks the relationship between peak and RMS level in real time, giving an at-a-glance read on how dynamic — or how squashed — a signal has become. This makes it equally useful as a corrective limiter on individual tracks and as a transparent master bus safety net during final mastering.

2. What Is Crest Factor?

Crest factor is a standard audio engineering measurement describing the ratio between a signal's peak (highest instantaneous) level and its RMS (average energy) level, usually expressed in decibels. A signal with a high crest factor has sharp, prominent peaks rising well above its average loudness — typical of dynamic, lightly processed material — while a signal with a low crest factor sounds dense and consistently loud, typical of heavily compressed or limited material. Because it quantifies dynamic range directly, crest factor is widely used in mixing and mastering to judge how much “life” is left in a signal after processing, and CrestFactor9 uses it as the basis for its real-time Integrated and Momentary readouts. A Crest factor range between 11dB and 7dB is recognised range for modern music, and 9dB being the middle point,

3. Installation

Install CrestFactor9 by copying the plugin file(s) into your system's plugin folder for the format your DAW uses, then rescan plugins in your DAW if it doesn't pick them up automatically.

Windows 10 / 11

Copy CrestFactor9.vst3 into:

C:\Program Files\Common Files\VST3\

macOS

Copy CrestFactor9.vst3 and/or CrestFactor9.component into whichever of the following applies. The /Library/ paths install the plugin for every user account on the Mac; the ~/Library/ paths install it for you only:

VST3 (all users): /Library/Audio/Plug-Ins/VST3/

VST3 (current user only): ~/Library/Audio/Plug-Ins/VST3/

AU (all users): /Library/Audio/Plug-Ins/Components/

AU (current user only): ~/Library/Audio/Plug-Ins/Components/

Linux

Copy CrestFactor9.vst3 into:

~/vst3/

4. Parameters & Controls

CrestFactor9's controls are split across the main panel and two grouped rows beneath the graph: Low Level and Limiter.

Main Controls

Limiter Gain — sets the amount of gain driven into the limiter stage before the ceiling, determining how much gain reduction the limiter applies.

Low Level Threshold — sets the RMS level below which the Low Level Gain Amplifier begins boosting quiet passages upward.

Low Level Section (Licensed)

The three controls below shape the upward expander that lifts quiet material toward the Low Level Threshold. These parameters require a valid CrestFactor9 license; on an unlicensed copy they remain visible but locked and run from fixed default values.

Gain Range — sets the maximum amount of gain the Low Level Amplifier is allowed to add to quiet passages.

Attack — sets how quickly the Low Level Amplifier ramps its gain in as the signal drops below the threshold.

Release — sets how quickly the Low Level Amplifier ramps its gain back out as the signal rises above the threshold.

Limiter Section

Limiter Release — sets how quickly the limiter's gain reduction recovers after catching a peak. Licensed parameter.

Ceiling — sets the limiter's output ceiling, selectable between -3 dB, -1 dB and -0.2 dB. Licensed parameter.

Mode — switches the limiter's output stage between True Peak limiting and Soft Clip saturation.

Lookahead — toggles the limiter's look-ahead detection on or off, trading a small amount of latency for cleaner peak catching when engaged.

5. Understanding the Graph

The main display shows six seconds of rolling history for the signal passing through CrestFactor9. The blue trace is the Input Signal level; the red trace along the bottom is the Low Level Gain currently being applied by the upward expander; and the yellow trace along the top shows Limiter Gain Reduction as peaks are caught at the ceiling. Two fixed text readouts sit over the graph: the Crest Factor readout in the centre shows Integrated (Int) and Momentary (Mom) crest factor in dB, while the smaller readout below it shows the Peak Low Level Gain and Peak Gain Reduction reached since the last transport stop.



Figure 1. The CrestFactor9 interface, showing the graph.

6. Sales & Support

For sales enquiries, licensing help or technical support, contact Studio9 Plugins at support@recordingstudio9.com.

References

The explanation of crest factor in Section 2 draws on the following published definitions:

- Sound On Sound. "Crest Factor." SOS Glossary. <https://www.soundonsound.com/glossary/crest-factor>
- DPA Microphones. "Crest Factor." DPA Dictionary. <https://www.dpamicrophones.com/dictionary/c/crest-factor/>
- Wikipedia. "Crest Factor." https://en.wikipedia.org/wiki/Crest_factor

[Crest Factor 9 VST3 Plugin]

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