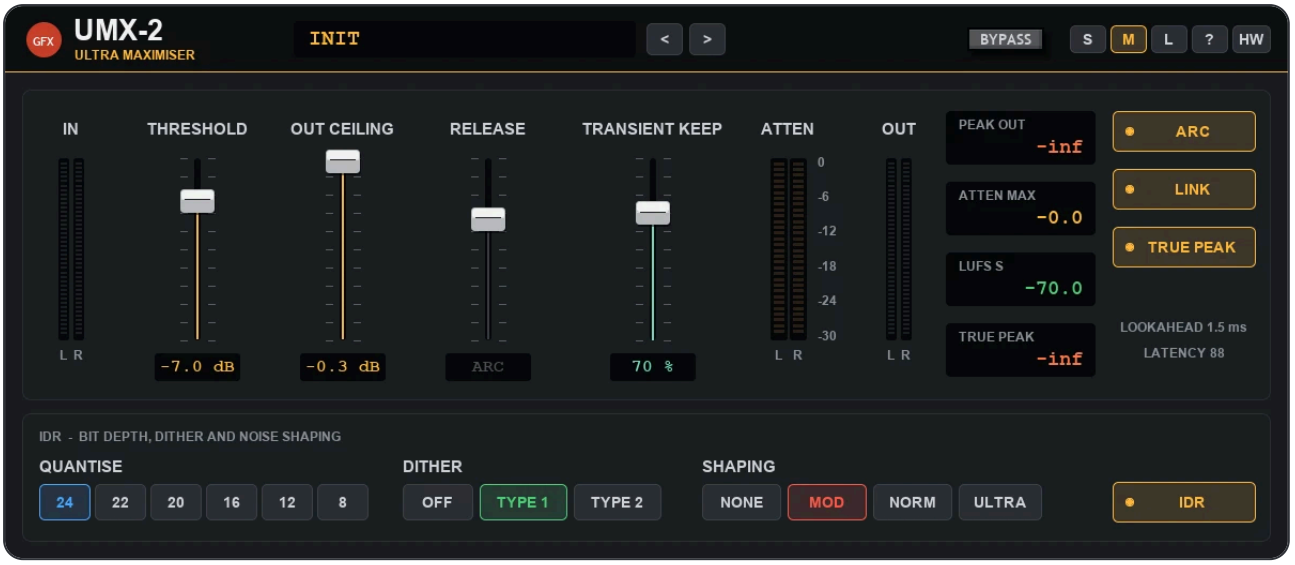
UMX-2

A two-fader mastering maximiser, in the spirit of the classic ones, that keeps the drums' snap.

> **A Lab plug-in.** The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions.



Overview

UMX-2 makes a finished mix louder without letting a single peak past the ceiling. Pull THRESHOLD down and the programme is pushed into a brickwall limiter that looks 1.5 ms ahead, so its gain is already down when a peak arrives: no overshoot, no clipping. ARC sets the release from the music itself, TRUE PEAK holds the ceiling between the samples too, and IDR re-quantises the result for delivery with dither and noise shaping.

This Lab version adds **TRANSIENT KEEP**. A plain maximiser treats a drum hit like the music under it: the whole mix ducks for the hit and then swells back, which you hear as pumping, and the hit itself is softened. KEEP splits the job in two. The main limiter looks after the music, and a second, very fast limiter takes the tip off each hit on its own. The mix stays up through the hits and the hits keep their snap, so you can go louder at the same ceiling. At 0 % it sounds exactly like the Stable UMX-2.

UMX-2 has no DRIFT: a mastering limiter should do the same thing every time.

Reach for it for

- The last stage of a master: loudness up, peaks held
- Dense, drum-heavy mixes that pump in an ordinary limiter
- Streaming masters with a -1 dB true-peak ceiling
- A safety limiter on a bus
- 16-bit CD masters (dither and noise shaping)

Controls

The header

Preset display	Shows the preset's name. Click it for the preset list.
< / >	Steps to the previous or next preset, wrapping round.
BYPASS	Lit = bypassed: the output crossfades (15 ms) to the untouched input, kept in time with the latency, so it never clicks the way REAPER's own on / off can.
S / M / L / ? / HW	Panel size; the credits and this manual's address; HW swaps the dark studio panel for a brushed-steel rack.

The limiter

IN	L and R input peak bars, -40 to 0 dBFS.
THRESHOLD	0 to -30 dB. Lowering it pushes the programme into the limiter: louder, peaks held.
OUT CEILING	0 to -20 dB: the highest peak that leaves the unit (default -0.3 dB).
RELEASE	1 ms to 1 s. Greyed while ARC is on.
TRANSIENT KEEP	0 to 100 %. How much of each hit is taken by the fast transient limiter instead of the main one. Around 30 - 60 % keeps the punch on most mixes; at 100 % the music is hardly ducked at all, and on very dense drums pushed hard the hits take on a little of a clipper's bite.
ATTEN	Gain reduction, L and R, 0 to 30 dB. Amber is the main

	limiter; mint is the extra taken by TRANSIENT KEEP.
OUT	L and R output bars with a floating peak hold (1.2 s). Click the bars to clear it.
Read-outs	PEAK OUT, ATTEN MAX, LUFS S (short-term loudness, 3 s) and TRUE PEAK. Click one to reset the holds.
ARC	Automatic release: a short burst of reduction recovers fast, steady reduction recovers slowly, so loud material neither pumps nor distorts.
LINK	Lit = both sides limited together (the stereo image holds). Dark = each side on its own.
TRUE PEAK	The limiter also reads the waveform between the samples, so the ceiling holds for inter-sample peaks (within about 0.1 dB).

IDR

QUANTISE	24, 22, 20, 16, 12 or 8 bits.
DITHER	OFF, TYPE 1 (plain triangular dither) or TYPE 2 (the same, its noise pushed up where the ear is least sensitive).
SHAPING	NONE, MOD (gentle), NORM or ULTRA (the strongest psychoacoustic curve): moves the remaining noise out of the most sensitive range.
IDR	The whole row in or out. Off = the full floating-point output.

Faders: drag (hold Shift for fine moves), click the slot to jump there, use the mouse wheel; double-click returns to the default. Every move is glided, so nothing clicks.

Presets

Init	No gain, -0.3 dB ceiling, ARC, 24-bit IDR.
Gentle Master	2 dB into the limiter.
Mix Bus	1 dB, -0.5 dB ceiling, 60 ms release, IDR off.

Loud Master	6 dB, -0.1 dB ceiling, KEEP 40 %.
Streaming -1 TP	3 dB, -1 dB true-peak ceiling, KEEP 25 %.
Safety Limiter	No gain, 300 ms, true peak: only catches strays.
Drum Bus	8 dB, fast 30 ms release, unlinked, KEEP 60 %.
Vocal Ride	6 dB into a -3 dB ceiling, slow 250 ms release.
16-bit CD	4 dB, true peak, 16 bits with TYPE 2 dither and ULTRA shaping, KEEP 25 %.
8-bit Crunch	3 dB into 8 bits, no dither: a lo-fi effect.
Punch Master	7 dB, true peak, KEEP 70 %: loud with the drums intact.

Tips

- Set the loudness with THRESHOLD and KEEP at 0, then raise KEEP until the drums come back without the kick pumping the mix.
- Watch the mint part of ATTEN: a little on each hit is right; mint on everything means KEEP is doing a clipper's work, so back THRESHOLD off a touch.
- For streaming use TRUE PEAK with the ceiling at -1 dB.
- Dither only once, at the very end: leave IDR off on buses and stems.

Latency: 1.5 ms lookahead, plus 0.25 ms for TRANSIENT KEEP, plus 6 samples (88 samples at 48 kHz), reported to REAPER.

`File: gfx-lab-umx-2.jsfx`