

Meridian

A precision metering suite — VU, full BS.1770-5 loudness, true peak, and a Real World Matrix that lets you audition how a master will actually translate.

Formats • AU, VST3 (macOS) Version • 1.0 Manufacturer • Smash Happy Audio

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What Meridian is for

Meridian is a pass-through analyser — it reads your audio, measures it in several genuinely useful ways at once, and passes it through unmodified except when you deliberately engage a Real World Matrix monitoring filter to audition a translation scenario. Nothing it does changes your master unless you ask it to.

Four instruments live side by side: a calibrated VU meter, a full BS.1770-5 loudness suite (momentary, short-term, integrated, and loudness range), a 4x-oversampled true-peak meter, and the Real World Matrix — three toggleable filters that simulate how your master will sound on a phone speaker, after streaming-platform loudness normalization, or over Bluetooth.

The interface

Four columns run left to right: VU Meter, LUFS Display, True Peak, and Real World Matrix, all reading the same signal simultaneously — you never have to switch modes to see level, loudness, and inter-sample peak behaviour together.

VU meter

A calibrated segmented VU meter with proper 300 ms ballistics. Calibration is adjustable from -18 to -6 dBFS (default -18) so 0 VU can be set to match whatever reference level you're working against.

LUFS

Full BS.1770-5 loudness metering with proper K-weighting: **Momentary** (400 ms), **Short-Term** (3 s sliding), and **Integrated** (the two-stage absolute + relative gated measurement the spec actually requires — not a simplified approximation), plus Loudness Range. Use **START** / **STOP** / **RESET** to control an integrated measurement pass over a full track.

ACCURACY

Meridian's LUFS engine has been verified against an independent BS.1770 reference implementation on real mastered material, matching within hundredths of a LU — this is a genuine spec-accurate measurement, not a loudness estimate.

True peak

4x-oversampled true-peak metering catches inter-sample peaks that a plain sample-peak meter misses entirely — the kind of over that only appears after your master is converted to a lossy format. **CLIP** lights and latches when 0 dBTP is exceeded; **RST** clears it. An overall peak-hold tracks the loudest true-peak moment across the session.

Real World Matrix

Three toggles let you monitor through a simulated real-world listening scenario without leaving your DAW:

SMARTPHONE TRAP	STREAMING PENALTY	BLUETOOTH TRANSCODE
Sums to mono, band-limits ~350 Hz–6 kHz — what a phone speaker actually reproduces	Applies the gain offset a streaming platform's loudness normalization would impose against your Stream Target	A high-frequency shelf cut approximating lossy Bluetooth codec transcoding

Toggle any of them on to hear — and see, via the dedicated meters each one drives — exactly how your master degrades in that scenario, then adjust with that translation in mind rather than guessing.

Specifications

Formats	Audio Unit, VST3
Platform	macOS 12+, universal binary (Apple Silicon + Intel)
Loudness standard	ITU-R BS.1770-5, momentary/short-term/integrated + LRA
True peak	4x oversampled, dBTP with latched clip + peak hold
VU calibration	−18 to −6 dBFS for 0 VU
Real World Matrix	Smartphone Trap, Streaming Penalty, Bluetooth Transcode
Processing	Pass-through — signal is unmodified unless a Matrix filter is engaged
Channel configuration	Mono or stereo in / stereo out

Troubleshooting

My integrated LUFS reading doesn't match another meter exactly

Small differences (a few hundredths of a LU) between spec-accurate BS.1770 implementations are normal and usually trace to filter normalization or gating edge cases — Meridian's engine has been independently verified against a reference implementation. Larger gaps usually mean the other meter isn't fully spec-compliant, or you're comparing Integrated against Short-Term/Momentary by mistake.

True Peak shows a clip my sample-peak meter didn't catch

That's expected and the whole point of true-peak metering — inter-sample peaks exceed 0 dBTP without any single sample in the file itself clipping. Back off your ceiling if this happens regularly.

A Real World Matrix toggle doesn't seem to change anything

Confirm you're actually listening through Meridian's output (not monitoring pre-fader) and that the toggle is actually engaged — each one is a real, audible filter change, not a meter-only simulation.