



MERLIN MTR

Every frequency, revealed.

USER MANUAL

Version 1.12
Side Key System / sidekey.fr
Made in France

INTRODUCTION

Merlin MTR is a six-slot audio analyzer, built to bring everything an engineer needs into a single window: spectrum, loudness, correlation, stereo field, transients. No hidden menus, no tabs to hunt for: everything sits in plain sight, arranged exactly the way you want it.

Each slot can host any analysis module you like, with a simple right-click. Two of them stay fixed in the bottom-right corner of the interface (Loudness and the diode VU meter): your permanent landmarks, always there even while you rearrange everything else. The rest is entirely yours.

Merlin doesn't actually do magic, despite the name. It just watches your signal very closely and shows you everything, no filter, no frills.

Overall layout

The interface splits into two rows of modules, a control bar at the bottom, and a header at the very top.

- 1 At the top: three slots you configure freely, plus a fourth always reserved for Loudness, at the end of the row.
- 2 At the bottom: one large configurable slot, plus a final one always reserved for the diode VU meter.

Each section of this manual walks through a module and its annotated screenshot: the orange numbers point to the list just below the image, the same way Nuke MK1's manual does it.

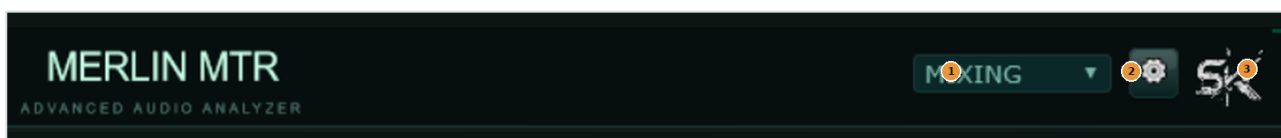
CONTEXT MENU & PRESETS

Right-clicking any configurable slot opens a menu listing every available module, each with its own small icon (a sine wave for the Oscilloscope, vertical bars for the Spectrum, and so on). Choosing Empty clears the slot, if you'd rather have some quiet.

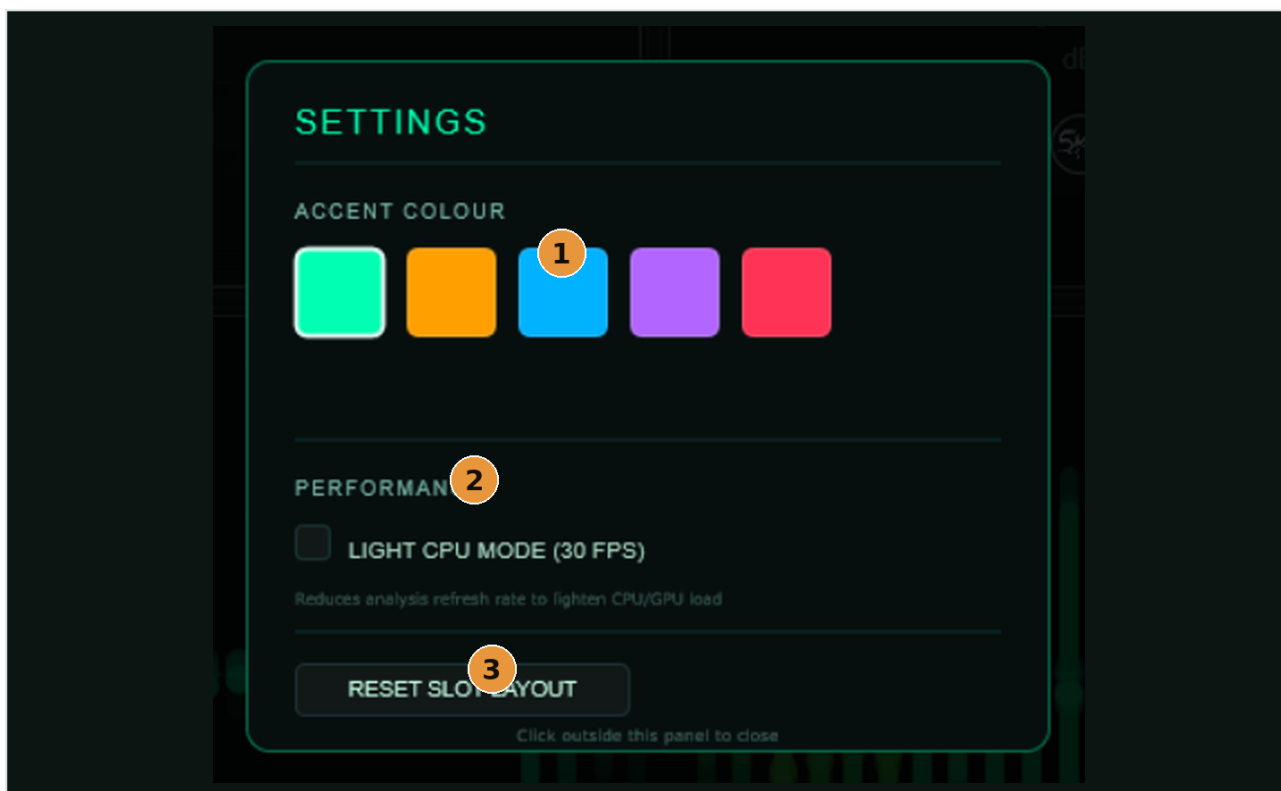
A module can only live in one place at a time: assigning it elsewhere automatically removes it from its old home.

Presets & general settings

At the top of the interface, next to the logo, sit a PRESET menu and a gear-shaped icon.

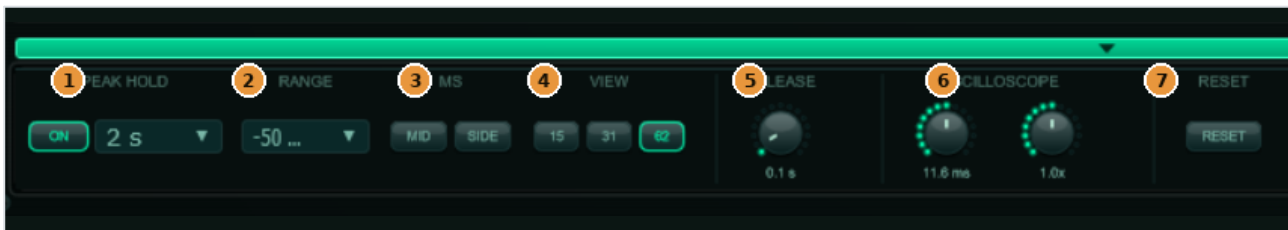


- 1 PRESET reconfigures the free slots in one click for a given use case: MIXING, MASTERING or SOUND DESIGN.
- 2 The gear icon opens the SETTINGS panel, shown below.
- 3 The logo, on the far right (or the blackbird, to the left of the title): clicking either one opens the plugin's About page.



- 1 ACCENT COLOUR: five colour palettes to choose from. Purely cosmetic, but an interface you enjoy looking at matters too.
- 2 LIGHT CPU MODE: drops the analysis refresh rate from 60 to 30 frames per second to ease the load on your machine, without changing how fast the meters actually move.
- 3 RESET SLOT LAYOUT: restores order if your experiments have left the module layout a little chaotic.

CONTROL BAR



The control bar, right at the bottom of the interface, gathers the settings for the main module and the Oscilloscope. A small arrow above lets you collapse it to free up screen space.

- 1 PEAK HOLD turns on peak hold for the Spectrum, with an adjustable hold time.
- 2 RANGE sets the dynamic range shown on the Spectrum's vertical axis.
- 3 MID / SIDE switches the analysis to Mid/Side instead of left/right.
- 4 VIEW picks the Spectrum's resolution: 15, 31 or 62 bands.
- 5 RELEASE sets how fast the bars fall back down.
- 6 OSCILLOSCOPE groups the window length (TIME) and the vertical amplitude (AMP).
- 7 RESET clears the peak holds back to zero.

VECTORSCOPE



The Vectorscope shows the signal's phase relationship and stereo width, as a point cloud or a continuous line, in the spirit of a classic analog goniometer. It doesn't judge your mix, it just draws it, a bit like a mirror, only more honest.

- 1 LINE / POINT switches between continuous-line and point-cloud display.
- 2 The M axis (Mid, at the top) and the L / R markers on the diagonals: a signal panned left traces toward the side marked L, right traces toward R.
- 3 The circular grid and the signal trace, whose persistence can be adjusted with the mouse wheel.
- 4 The correlation meter, at the bottom: a horizontal gauge showing instantaneous L/R correlation (+1 = mono, 0 = wide, -1 = out of phase).

CONSEIL D'UTILISATION

A trace tightly bunched at the centre points to a signal that's mostly mono or heavily correlated. A wide, round cloud signals a decorrelated stereo signal. A trace that stretches out a lot horizontally is worth a mono-compatibility check before you get too excited.

OSCILLOSCOPE



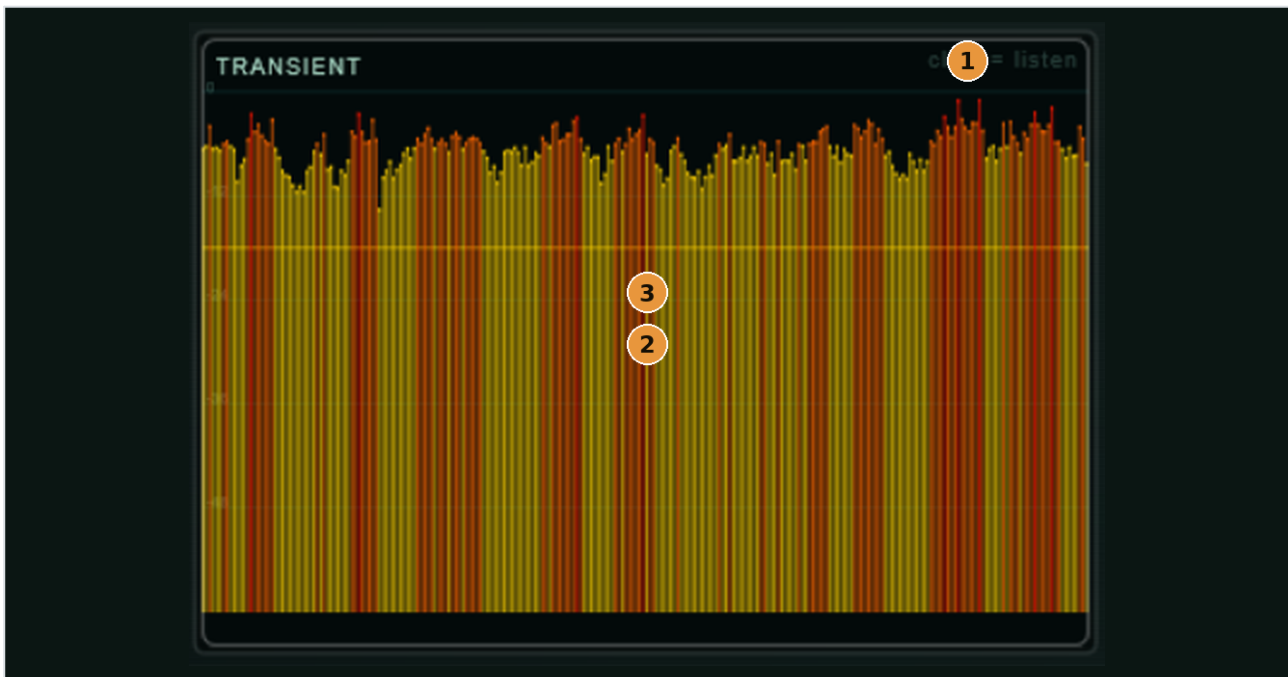
The Oscilloscope shows the raw waveform of the signal over time. Simple on the surface, but ruthless at spotting digital clipping, waveform asymmetry, or a DC offset that's been lingering since three plugins ago.

- 1 TRIG triggers the display on a zero crossing to keep a periodic signal's image steady. Without it, the window just scrolls continuously.
- 2 The waveform trace.
- 3 The channel legend, bottom left.

CONSEIL D'UTILISATION

Window length (TIME) and vertical amplitude (AMP) are set from the control bar, in the OSCILLOSCOPE group.

TRANSIENT



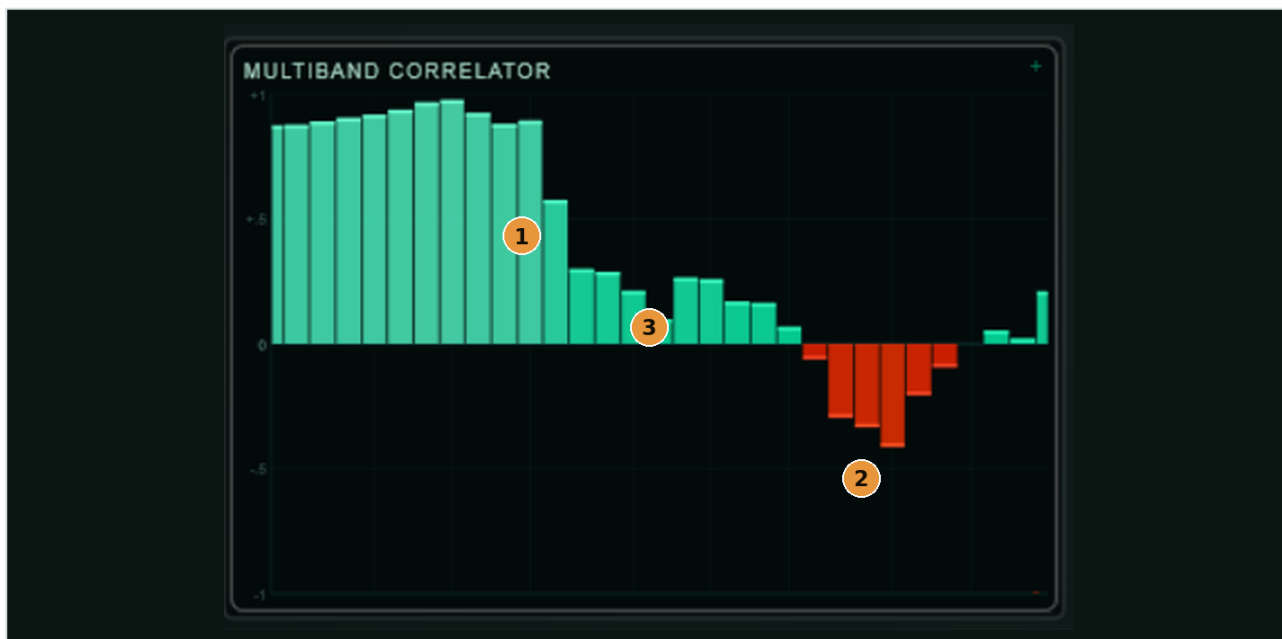
The Transient module shows the signal's attack envelope as scrolling columns, to visualise the density and strength of impacts: percussion, note attacks, anything that hits.

- 1 « click = listen »: holding a click on the graph sends the transient content to solo listening.
- 2 The scrolling envelope columns.
- 3 The threshold line: above it, a column turns red (a marked transient); below it, it stays amber.

CONSEIL D'UTILISATION

The threshold is set from the control bar. Clicking and holding on the graph lets you judge whether a drum hit actually cuts through the mix, or just shows up for the photo.

MULTIBAND CORRELATOR



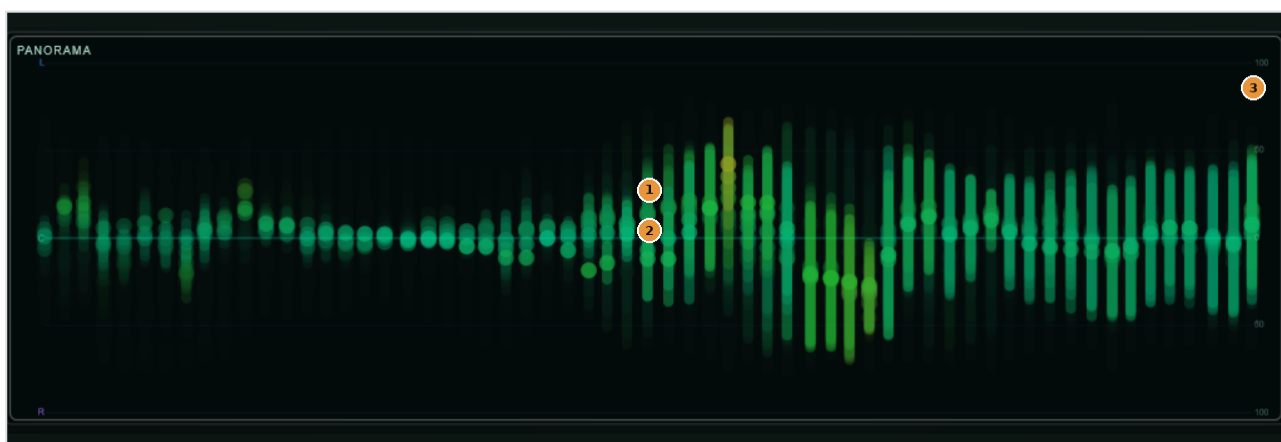
The Multiband Correlator shows L/R phase correlation independently for each frequency band, as bars. A global correlation meter will never show you this level of detail: here, a localized phase problem has nowhere to hide.

- 1 Teal bars (positive): bands in phase, coherent stereo content.
- 2 Red bars (negative): bands out of phase, with a risk of cancellation in mono.
- 3 The zero line, used as a reference.

CONSEIL D'UTILISATION

Clicking a band solos it. Ctrl+click, or dragging with Ctrl held down, lets you select several bands at once for a combined listen. The full details of this feature, shared with this module, Panorama, and Spectrum, are explained in the Spectrum section of this manual.

PANORAMA



Panorama shows the stereo position of the signal's energy as a function of frequency, as a point cloud with persistence: an overview of the mix's stereo width, band by band.

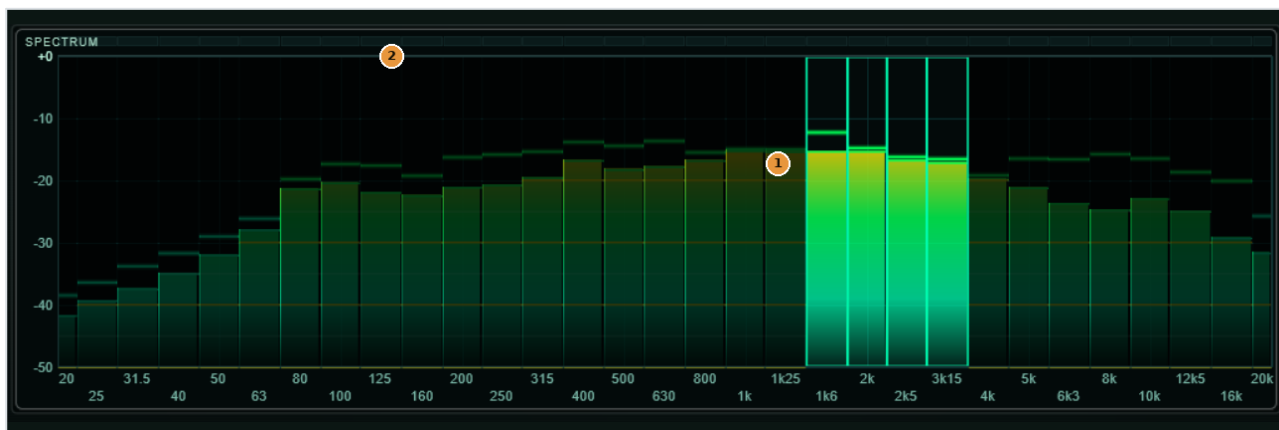
- 1 The point cloud: each point represents a band's energy at a given moment, positioned vertically according to its place in the stereo field.
- 2 The centre line, used as a reference for centre and mono.
- 3 The stereo width scale, from 0 (centre) to 100 (hard left or right).

CONSEIL D'UTILISATION

Like the Multiband Correlator and the Spectrum, this module accepts click and Ctrl+click to audition one or several bands. See the Spectrum section for the details.

SPECTRUM

The Spectrum is Merlin MTR's main spectrum analyzer: level per frequency band (15, 31 or 62 bands depending on the chosen resolution), with peak hold, a logarithmic scale, and a colour gradient so you can read the relative level at a glance.



- 1 The selected bands, highlighted: see the box below.
- 2 The vertical dB scale and the peak-hold marks above each bar.

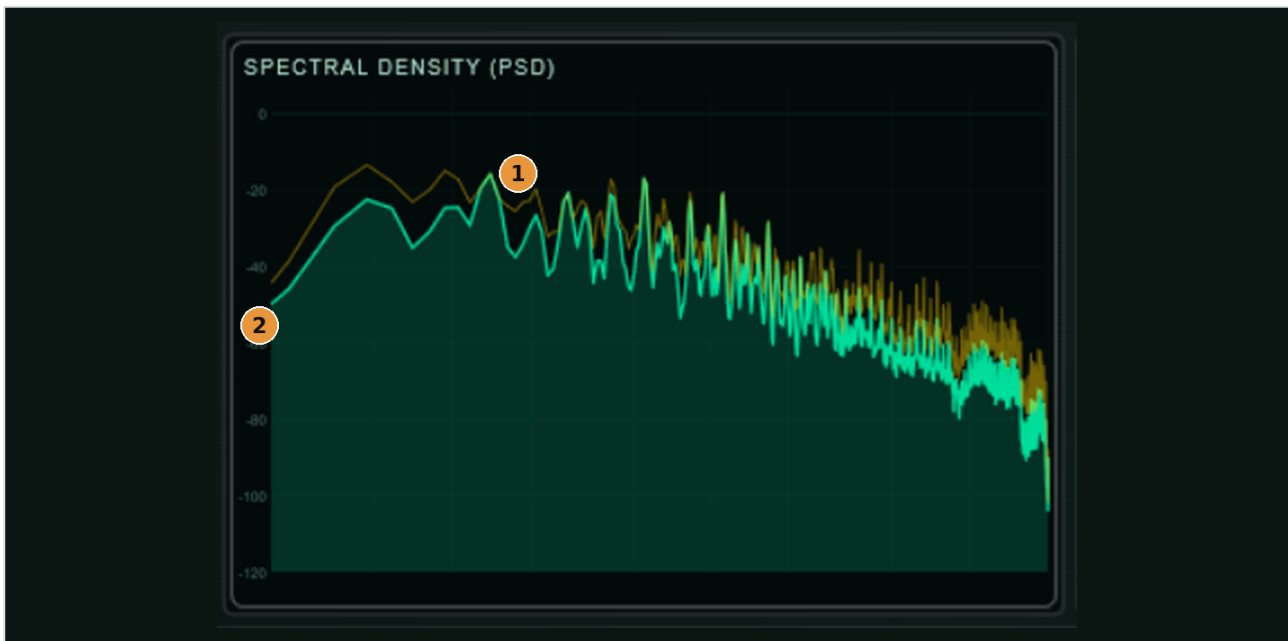
TIP

Band selection and listening (Spectrum, Multiband Correlator, Panorama)

On these three modules, simply clicking a band sends it to solo listening for as long as the click is held. It's the fastest way to hear exactly what audio information is passing through that frequency slice. **Ctrl+click** (or dragging the mouse with Ctrl held) lets you **select several bands at once**, persistently, for a combined listen across several areas of the spectrum at the same time. The selection stays active until a new plain click, a new Ctrl+click on an already-selected band (which removes it), or a selection made on one of the other two modules: only one of the three can be in listening mode at a time.

Tip: this targeted listening is especially useful during the correction stage. By isolating one or more bands that stand out visually on the Spectrum, the Multiband Correlator, or Panorama, you can pinpoint exactly which instrument or resonance is causing trouble, then step in with a targeted EQ move or automation. Once the fix is in, listening back to the same band selection lets you check that the mix has actually become more cohesive, without ever having to solo whole tracks.

SPECTRAL DENSITY (PSD)



Power Spectral Density shows two continuous curves, Welch-averaged: average level and peak level per frequency, for a fine reading of spectral texture that complements the Spectrum's bars.

- 1 The amber curve: peak level, with a slow decay.
- 2 The teal curve: instantaneous average level.

CONSEIL D'UTILISATION

This module is especially useful in sound design, for examining the fine texture of a noise or synthetic texture, where the Spectrum's band resolution smooths out too much detail.

LOUDNESS (EBU R128)



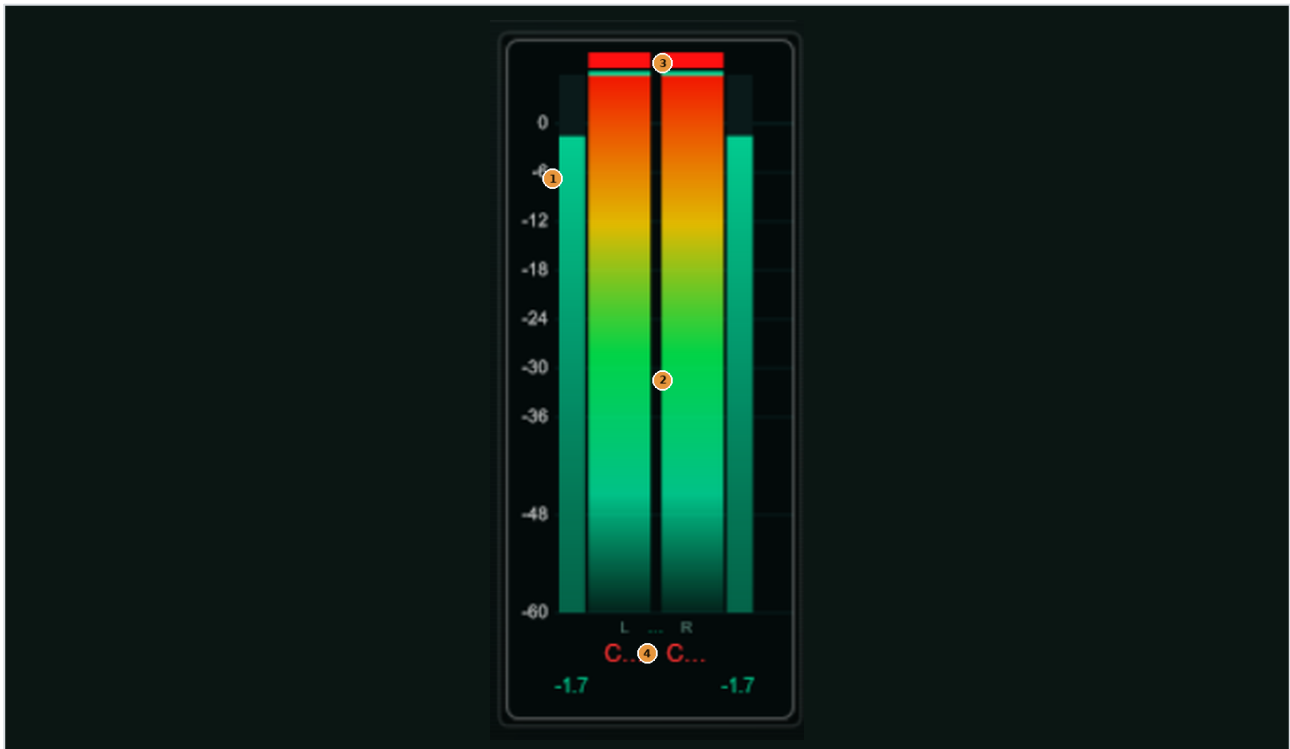
The Loudness module measures the signal's perceived level per the EBU R128 / ITU-R BS.1770-4 standard, with standard-compliant gating for the integrated measurement. A fixed slot, always visible in the top-right corner of the interface: impossible to lose track of by accident.

- 1 INTEGRATED: the integrated loudness over the whole listening session.
- 2 SHORT TERM (3-second window) and MOMENTARY (400ms window).
- 3 LOUDNESS RANGE: the programme's overall dynamics, in LU.
- 4 TRUE PEAK L / R: the true peak per channel, in dBTP.

CONSEIL D'UTILISATION

For broadcast, the usual target is -23 LUFS integrated. For music streaming, platforms generally normalize around -14 LUFS integrated. Either way, keep an eye on TRUE PEAK to stay under -1 dBTP and avoid clipping after conversion.

DIODE VU METER



The diode VU meter shows peak and RMS level for each channel as gradient columns, from green to red. A fixed slot, always visible in the bottom-right corner of the interface.

- 1 The dBFS scale, from 0 to -60.
- 2 The four columns: the two outer ones show RMS, the two centre ones show peak.
- 3 The clip lights above each column, which light up on any excursion past 0 dBFS. Clicking one turns it off.
- 4 The numeric peak and RMS reading per channel, below the columns.

NEEDLE VU METER



The needle VU meter recreates a classic analog VU meter, with a physical ballistic that mimics a real mechanical mass held back by a spring. It has never touched an actual electrical current in its life, but it moves exactly as if it had.

- 1 The LIVE / HOLD indicator.
- 2 MODE picks which channel(s) are measured: LR (average), L, or R.
- 3 CALIBRATION sets the real level, in dBFS, that maps to the « 0 » mark on the scale. Available choices: -8, -10, -12, -14, -18 and -20 dBFS (-10 dBFS by default).
- 4 The non-linear graduated scale, from -20 to +3.
- 5 The red zone, past +1: the signal is flirting with saturation.
- 6 The needle itself.
- 7 The « VU / dB » mark at the centre of the dial.
- 8 The Side Key monogram, tucked discreetly onto the needle's pivot, right where nobody thinks to look.
- 9 The numeric peak, RMS and integrated LUFS reading.
- 10 The HOLD button, which freezes the needle on the maximum reached since it was switched on.

CONSEIL D'UTILISATION

Pick your calibration based on your studio's reference level: -18 dBFS is a common standard in post-production, -20 dBFS in European broadcast. Higher values, -10 or -8 dBFS, suit a workflow closer to modern music, where the programme sits much closer to the digital ceiling.

ABOUT



Merlin MTR is developed by **Side Key System**. At Side Key System, calibration isn't a final tweak, it's part of the engineering process itself. Every tool is designed, measured, tested and calibrated with meticulous attention to precision, stability, and measurement consistency.

sidekey.fr

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