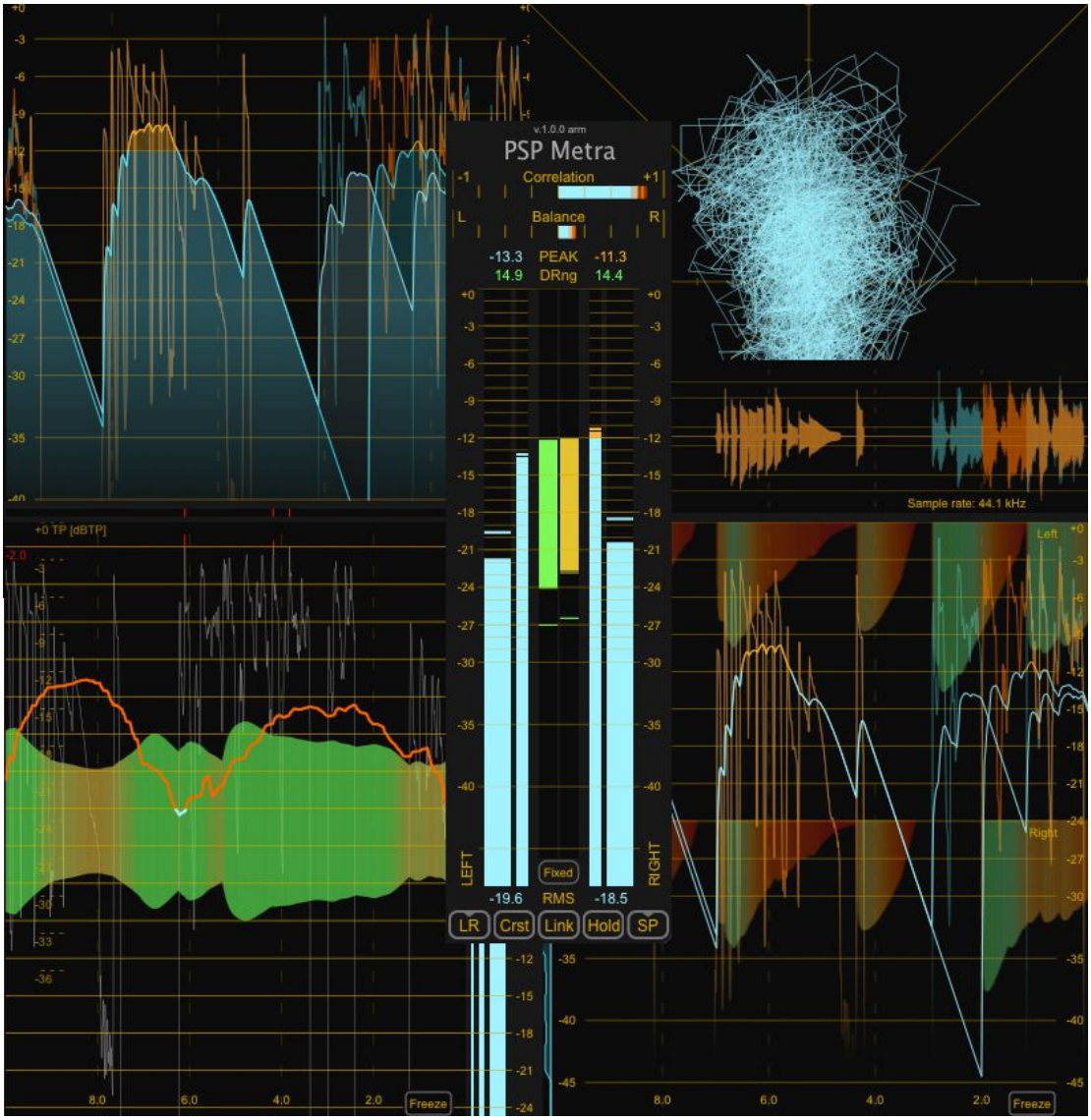
PSP Metra



Operation Manual

www.PSPaudioware.com

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Thanks to all our customers around the world for your ideas and help in the development of new plug-ins!

Table of Contests

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PSP Metra

General Description

PSP Metra is an audio plugin available in VST2.4, VST3, AudioUnit, and AAX formats, designed exclusively for real-time signal analysis and metering.

It does not process or alter the sound – its purpose is to provide the user with precise information about loudness levels, dynamics, and stereo image.

Visually, PSP Metra is loosely inspired by the character of 1980s LCD-based meters, combining a classic aesthetic with modern analysis methods.

The plugin operates strictly in stereo mode, with the possibility to work in mono configuration as well.

PSP Metra is an online-only tool – it analyzes only the audio currently played back in the DAW or host.

The plugin is intended for use in mixing, mastering, and broadcast applications. It enables accurate monitoring of material according to modern loudness standards (such as EBU R128, ITU-R BS.1770) and streaming platform requirements.

Key Features

- Fundamental level measurements: Peak, RMS, and VU(see page 8).
- Dynamic range and crest factor monitoring, showing the relationship between peak and average levels (see page 10).
- Stereo image analysis, including goniometer, panorama meter and correlation meter (see page 7 and18).
- Comprehensive loudness analysis:
    - Perceptual loudness measurement parameters defined by ITU-R BS.1770 / EBU R128: momentary, short-term, integrated (see page 23),
    - True Peak – maximum continuous-time amplitude reconstructed with 4× oversampling to capture inter-sample peaks (see page 24),
    - Dialogue Integrated Loudness – measurement of average dialogue loudness based on Dolby Dialogue Intelligence™ detection algorithm; automatically isolates and analyzes spoken segments to provide accurate dialogue level readings for broadcast and streaming compliance (see page 26),
    - PSR (Peak-to-Short-term Loudness Ratio) – difference between peak level and short-term loudness; indicates microdynamics and transient preservation(see page 24),
    - PLR (Peak-to-Loudness Ratio) – difference between maximum true peak and integrated loudness; shows overall macrodynamic headroom (see page 25),
    - LRA (Loudness Range) – statistical span between 10th and 95th percentiles of short-term loudness distribution after gating; describes program macrodynamics(see page 25),

    - Predefined presets for broadcast and streaming platforms – e.g. EBU R128, ATSC A/85, Spotify, Apple Music; automatically set targets, gating, and TP limits (see page 30),
    - Full compliance with standards – validated against EBU R128 v5.0, Tech 3341, 3342, 3343 and ITU-R BS.1770 using official test sets (see page 33).
- Multiple metering views, tailored to different workflows:
    - Metra view – main level and dynamics meters with correlation and balance meters (see page 7), or with loudness metering in Loudness mode (see page 11),
    - Minimal view – compact level and dynamics meter (see page 8),
    - History view – up to 120 seconds of level and dynamics trace (see page 14),
    - Goniometer view – stereo image meter (see page 18),
    - Loudness view – loudness metering with up to 120 seconds of loudness history (see page 22),
    - Loudness Values view – compact numerical-only panel displaying real-time loudness and dynamics readouts (Momentary, Short-term, Integrated, True Peak, LRA, PSR, PLR, and Dialogue Integrated); optimized for detailed level monitoring without graphical meters (see page 32)
    - Setup view – configuration of measurement standards, scales, and visualization (see page 34).

Who Is PSP Metra For?

PSP Metra is an essential tool dedicated for:

- mixing and mastering engineers who need to ensure compliance with current loudness and dynamics standards,
- creators preparing content for streaming platforms such as YouTube, Spotify, Apple Music, Tidal, or podcast services – all of which enforce specific loudness targets,
- broadcast and live sound engineers,
- anyone who requires precise, real-time control of levels and dynamics.

Exception to the “analysis only” principle

PSP Metra never processes or modifies the audio signal – with one deliberate exception.

In the Setup panel, the user can enable the weighted filter listening mode (see the Filter Setup section). When activated, the audio signal is routed through the selected weighting curve and output for monitoring.

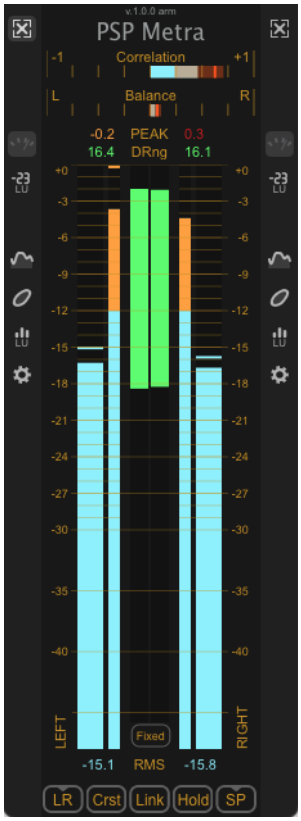
This mode is intended only for auditory inspection of the applied weighting filter, not for further processing of the audio.

Views

PSP Metra provides several dedicated measurement tools, each organized into a separate view. These include the Metra (as basic) View, Minimal View, History View, Goniometer View, Loudness View, Loudnes Values View and Setup View.

The plug-in allows simultaneous display of two different measurement panels on the left and right sides of the window. Each panel can independently present a different type of measurement, but the same view cannot be active on both sides at the same time. The icon logic ensures that different measurements are always displayed.

Switching between views is done using the icon buttons located on vertical bars at both sides of the interface. Each icon corresponds to one view. Clicking an icon on the left activates that view in the left panel, while clicking the same icon on the right activates it in the right panel. Clicking an active icon again closes the corresponding view. The currently active views are highlighted in gray on their respective bars.



Loudness Values View operates independently of the left and right panel switching logic and can be enabled or disabled separately. Metra View, as the default display, is always visible when no other panel is active. Loudness Values View can be opened on either side as a compact numerical-only panel for loudness readouts without graphical meters.

Metra (basic) view

Metra View is the main operating mode of PSP Metra and the default screen when the plugin is launched.

This view provides level meters in the form of classic bar meters.

In the top section, correlation and stereo balance (panorama) meters are available.

Below, RMS and Peak values are displayed, along with dynamic measurements shown by the Dynamic Range or Crest meters. This set of meters makes up the Minimal View.

Correlation Meter

The Correlation Meter shows the phase relationship between the left and right channels of a stereo signal.

The scale typically ranges from −1 to +1, where +1 indicates perfect phase alignment (identical signals in both channels), 0 represents no correlation (independent channels, wide stereo image), and −1 means complete phase inversion between channels (signals are opposite).

Values close to +1 are typical for mono signals or well-aligned stereo mixes. Readings around 0 indicate a wide stereo image, but may suggest potential issues when summed to mono. Values below 0 are undesirable, as they indicate phase cancellation, which can cause parts of the signal to disappear in mono playback.

Balance Meter

The Balance Meter shows the distribution of signal level between the left and right channels. A value close to 0 indicates balance, where both channels have similar levels. A shift toward positive values indicates dominance of the right channel, while a shift toward negative values indicates dominance of the left channel. Stable readings around zero reflect a well-balanced stereo image. Persistent deviations to one side may suggest an imbalance in the stereo mix, meaning that one side is noticeably louder than the other. While intentional panning is often used as a creative choice during mixing, in mastering excessive imbalance can lead to listening fatigue and an undesirable sense of asymmetry.

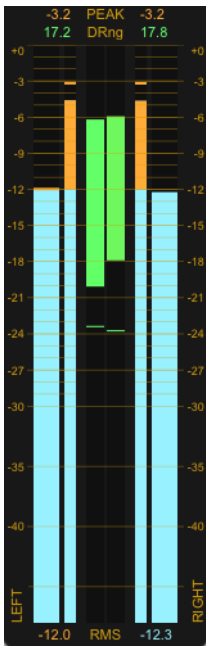
Minimal view

Minimal View displays only the level and dynamics bars along with their maximum numerical values.

This view offers two modes: Standard and Loudness. In Loudness mode, the dynamics meters (Dynamic Range and Crest) are replaced with loudness meters that display Momentary, Short-Term, and Integrated loudness values. The Loudness mode is activated in the Setup panel.

Both the Correlation Meter and the Balance Meter share the same visual behavior. Each meter uses a three-layer display: the light-blue bar represents a smoothed and filtered average value, the semi-transparent brown bar shows the range of changes that occurred during the last three seconds, and the red marker indicates the instantaneous value updated in real time. This unified visualization allows the user to observe both the short-term variability and the long-term tendency of the measured parameter, regardless of whether it reflects phase correlation or channel balance.

RMS/VU bars



The outer bars can operate in either RMS or VU mode, selectable in the Setup window. PSP Metra performs these measurements dynamically by applying filters with carefully chosen time constants, such as integration time, to accurately reproduce their behavior in real audio work. The selected measurement algorithm (RMS or VU) is indicated at the bottom of the meter by a label together with the maximum numerical value.

RMS (Root Mean Square) is a mathematical method of calculating the effective average level of a signal. It is obtained by squaring the instantaneous sample values, averaging them over a chosen integration time, and then taking the square root. In audio practice, RMS reflects the perceived energy of a signal and is therefore widely used as an indicator of perceived loudness. RMS reacts faster than VU meters and follows level changes more closely, making it more accurate for technical measurement. However, because of its mathematical nature, RMS can sometimes exaggerate short-term changes that are less noticeable to the human ear.

VU (Volume Unit) meters were developed as a perceptually oriented alternative to pure mathematical measurement. A VU meter integrates the signal with a relatively long time constant, typically around 300 ms for both attack and release. This slow ballistics smooths out fast peaks and short fluctuations, showing instead a stable representation of the signal's average loudness as it is subjectively perceived by listeners. VU meters are therefore less sensitive to transients than RMS, but better aligned with human perception of program material.

In PSP Metra, both RMS and VU measurements are implemented dynamically using filters with carefully selected time constants. The chosen algorithm is clearly indicated at the bottom of the level meters by a label (RMS or VU) along with the maximum numerical value. The user can select which method is applied, and this choice directly influences the values presented by the level bars as well as calculations in other related meters, such as Crest Factor or Dynamic Range.

RMS is most useful when precise technical control of loudness and headroom is required, for example when balancing signals in a mix or when matching levels between tracks. VU, on the other hand, is better suited to evaluating program material as it is perceived by listeners, making it particularly valuable in mastering, broadcast, or any context where subjective listening comfort is a priority. Together, RMS and VU offer complementary perspectives: RMS provides accuracy and precision, while VU reflects the way loudness is experienced by the human ear.

Peak bars

The next bar in Minimal View is the Peak Meter. Depending on the settings, it can display Sample Peak, True Peak, or PPM (Peak Programme Meter).

Sample Peak shows the maximum value of an individual digital sample. This is the most basic method of peak detection, but it does not always represent the actual playback level, since higher values can occur between samples (known as intersample peaks).

True Peak (as defined by ITU-R BS.1770) represents the maximum signal level after interpolation between samples. This provides a more accurate representation of actual peaks that may occur during digital-to-analog conversion or lossy encoding (e.g., MP3, AAC). To ensure accurate True Peak measurement, PSP Metra uses oversampling, which makes it possible to detect intersample peaks that would otherwise remain hidden at the original sampling rate.

PPM (Peak Programme Meter) is a traditional broadcasting meter. Unlike sample or true peak detection, PPM applies attack and release time constants (for example, a 10 ms rise time) and displays an averaged value. This prevents excessive response to very short transients that are irrelevant in practical transmission. Two main standards are distinguished:

PPM Type I (British) – faster and more sensitive to short transients,

PPM Type II (Scandinavian/EBU) – slower, more visually stable, widely used across Europe.

The active peak detection mode (SP, TP, PP1, or PP2) can be selected from the Peak Mode control (see Peak mode). The default setting is SP (Sample Peak).

The maximum values measured by the Peak Meter are shown at the top of the display, next to the PEAK label.

Dynamic bars

The central set of bars represents dynamics measurement. Depending on the settings, it can show either Dynamic Range or Crest Factor. The active measurement mode is indicated by a label (DRng / Crest) above the bars, together with the maximum numerical value.

The dynamic bars are color-graded, with smooth transitions between colors that visually emphasize different dynamic ranges / crest factor of the signal. This makes it easy to see at a glance whether the material is operating in a low, medium, or high dynamic zone, without having to read exact numbers. The exact threshold levels (in dB) where the color changes occur are user-configurable in the Setup view. Separate color ranges can be defined for Dynamic Range and for Crest Factor, allowing the visualization to be adapted to different workflows.

The dynamic bars can be displayed in two modes. In Fixed mode, they remain anchored at the top of the meter, always showing their values relative to the scale. In Floating mode (default), the bars move up and down following the RMS bars, so their position reflects the current signal level while still indicating the dynamics span.

All measurement bars display values in decibels [dB] with a linear scale, as indicated by the graduations next to the meters.

At the bottom, on each side of the display, labels indicate which set of bars corresponds to the left and right channel. These labels automatically adjust when the meter is switched to Mid-Side mode, changing accordingly to reflect Mid and Side channels.

Dynamic Range represents the difference between the quietest and the loudest parts of the signal over time. In practice, it is calculated by measuring the RMS level within a given time window, and then determining the distance in decibels between the minimum and maximum values. The result indicates how wide the loudness span of the material is. A high value reflects a natural, wide dynamic range that gives the track contrast and breathing space, while a low value suggests a flattened sound caused by heavy compression.

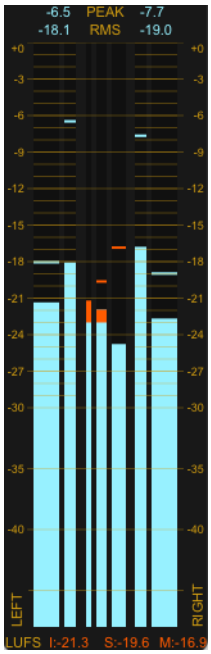
Crest Factor describes the relationship between the peak level (Sample Peak, True Peak, or PPM) and the average level of the signal (RMS or VU) within the same time window. It is calculated as the difference in decibels between the maximum peak and the averaged level. A high crest factor is characteristic of material rich in transients, such as acoustic percussion, while a low crest factor indicates heavily processed audio dominated by compression or limiting.

Each of the indicators serves a different purpose: Crest Factor is most useful for describing the presence and quality of transients at a given moment, while Dynamic Range illustrates the loudness span across longer sections of the material. In practice, Crest Factor is especially valuable when setting limiters, clippers, and compressors to preserve punch, while Dynamic Range helps determine whether a track has been overly flattened and whether it retains sufficient contrast between quiet and loud passages. Using both meters together provides a complete picture of dynamics – both in the microscale of transients and the macroscale of the overall arrangement.

The measurement of both indicators depends on the meter settings chosen by the user. PSP Metra allows the selection of the peak detection method (Sample Peak, True Peak, PPM) as well as the averaging algorithm (RMS or VU). These choices directly affect the reported values of both Dynamic Range and Crest Factor.

Minimal View – Loudness mode

This compact view displays loudness-based level metering instead of standard dynamics metering. In this mode, the dynamics bars (Dynamic Range and Crest) are replaced with loudness bars, while the Peak and RMS indicators remain visible. The thinnest bar represents the Integrated (I) loudness, the middle one shows Short-Term (S), and the thickest corresponds to Momentary (M). The numerical section at the bottom presents the current Integrated value and the maximum S and M readings since the last reset. Maximum values are reset by clicking on the area with the numerical readouts.



The loudness measurement shown in this view corresponds directly to the loudness data displayed in the Loudness View window.

The Loudness mode is activated in the Setup panel. In this mode, the Scale Reference controls are disabled, and the loudness parameters follow the configuration defined in the Loudness Setup section, including LU Target and LU TPmax (True Peak Max). The scale display and color behavior of all bars are aligned with loudness metering: Peak and RMS bars follow the LU TPmax value, while in Relative mode the scale adapts dynamically to the LU Target setting.

Controls

Single-click function

All maximum values can be reset at any time by clicking on the numerical values or their labels. The reset always applies to all indicators simultaneously – Peak, RMS, and Dynamic.

Double-click function

The Minimal View can be activated by double-clicking on the meter area that displays only the level and dynamics bars (RMS/Peak/Dynamics). This action hides additional elements of the Metra View, such as the correlation and balance meters or control buttons, leaving only the essential bar meters with their maximum values.

Channel Mode

Channel Mode is a drop-down list that allows you to select one of four operating modes for the meter: Left / Right, Mid / Side, Mid −3 dB / Side, and Mid −6 dB / Side.

The Mid / Side mode separates the signal into the sum (Mid) and the difference (Side), enabling independent analysis of the central and lateral components of the mix.

The Mid −3 dB / Side and Mid −6 dB / Side variants apply attenuation to the Mid component by 3 or 6 decibels, respectively. This is practically useful because in a standard Mid / Side representation, the Mid signal usually carries much more energy than the Side. Reducing the Mid level makes the proportions between the Mid and Side easier to visualize and compare, improving the assessment of stereo width and spatial balance in a mix.

The currently selected option is always shown as a label in the Channel Mode selector.

Crest Factor button

Switches the dynamics bars into Crest Factor mode. When the button is pressed (highlighted), the central dynamics bars no longer display Dynamic Range, but instead measure and show Crest Factor values.

This control is linked with the Dynamic Type - Crest Factor button in the History View, and both operate on the same parameter.

Link button

The Link button toggles channel linking for dynamics measurement. When engaged, the Crest Factor or Dynamic Range is calculated jointly for both channels. In this mode, the meter follows the higher of the two channel values, ensuring that the displayed result always reflects the most critical condition. When disengaged, each channel is measured and displayed independently.

Note: In Loudness mode, the Crest Factor and Link buttons are replaced with Loudness Processing (Proc) and Loudness Scale Relative (Relv) controls.

Loudness Process button

The Loudness Process enables or disables the loudness measurement engine.

Loudness Scale Relative button

The Loudness Scale Relative defines whether loudness values are shown as LUFS (absolute, relative to full scale) or as LU (relative to the selected loudness target).

For more information see Loudness viewsection.

Hold button

The Hold button changes the behavior of peak value retention on the level meters. By default, auto reset is active, where peak values are held for the time defined by the Peak Hold Time parameter and then automatically released.

When the Hold button is pressed (highlighted), peak values are retained indefinitely and remain visible until a manual reset is performed (see **Single-click function**).

Peak mode

The Peak Mode control is a drop-down list that allows you to select the type of peak measurement used by the meter.

The available options are:

SP (Sample Peak) – detects the maximum value of individual digital samples.

TP (True Peak) – calculates intersample peaks using oversampling, according to ITU-R BS.1770.

PP1 (PPM Type I) – peak programme meter with fast ballistics (British standard), sensitive to short transients.

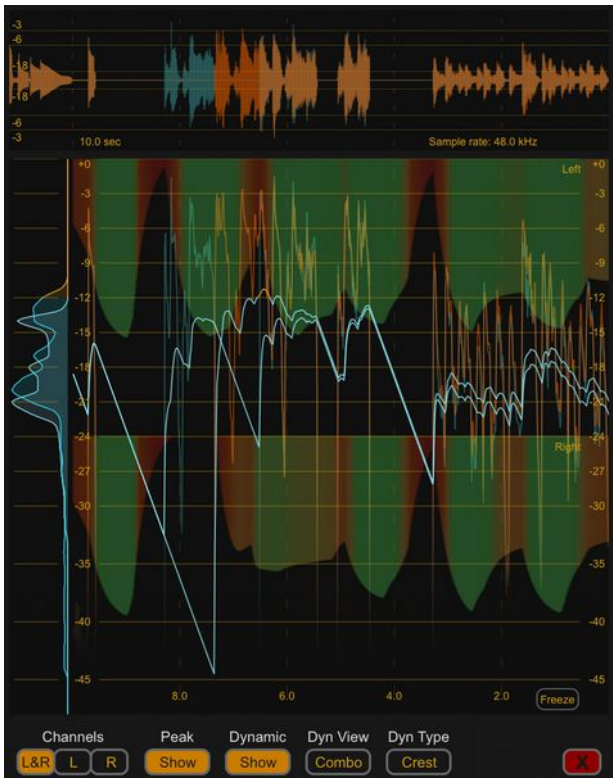
PP2 (PPM Type II) – peak programme meter with slower ballistics (EBU/Scandinavian standard), more visually stable.

The currently selected option is always shown as a label directly on the control.

Fixed button

The Fixed button changes the display behavior of the dynamic bars. When the button is pressed (highlighted), the dynamic bars are anchored at the top of the meter. In normal operation, when the button is not active, the bars work in floating mode, where their position follows the values indicated by the RMS bars.

History view

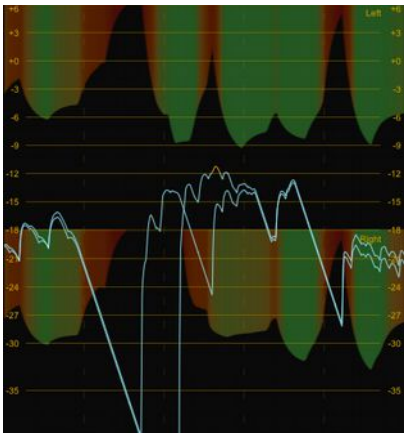


History View allows monitoring changes in signal levels over time by collecting data from the bar meters and displaying it as graphical traces. The maximum length of the history buffer is 120 seconds.

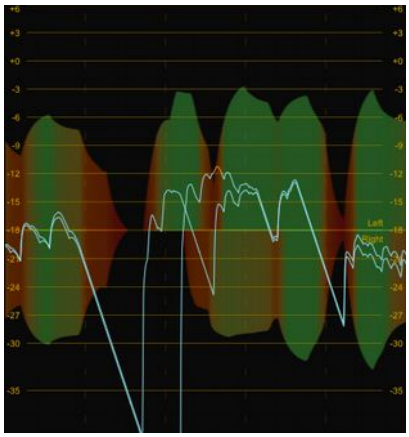
The view is divided into three main sections.

History Traces

The central area represents over time the values shown by the bar meters. The RMS/VU trace is always displayed, with the option to enable additional curves: Peak and Dynamic.



Dynamic trace (area) shown individually for each channel



Dynamic trace (area) shown as a combined curve

The Dynamic trace (Dynamic Range or Crest Factor) is displayed not as a single line, but as a filled, color-graded area that reflects the smooth transition between dynamic ranges, in the same way as the colored dynamic bars. The color scheme is fully configurable. Separate colors can be assigned for Dynamic Range and Crest Factor in the Setup view.

The dynamic trace can be shown individually for each channel or as a combined curve, depending on the setting selected in the Setup view.

Note: Data in the history is recorded continuously and is not recalculated when measurement settings are changed. For example, after switching from RMS to VU, the history will contain VU values only from the moment of the change, while earlier parts remain stored as RMS. Similarly, switching from Dynamic Range to Crest clears the history buffer for the dynamics trace and starts new accumulation.

Histogram

The histogram bar on the left shows the distribution of RMS/VU values for the time range currently visible in the history trace.

Wave

At the top of the History View window there is the Wave subwindow section, which displays the audio envelope and provides a visual reference for the level traces in the History Traces section.

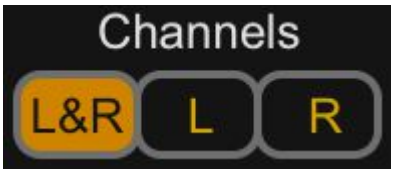
The Wave and the history traces are always time-synchronized, showing the exact same portion of the signal.

Scales: The vertical scales of the history traces and histogram are expressed in decibels [dB], while the time axis of both Wave View and History Traces is expressed in seconds [s].

Note: The History View does not allow scrolling backwards in time. The only way to extend the visible range is by increasing the Time Range parameter, which reduces the resolution of the display.

Controls

Channels switch



Allows selection of the channel presentation mode. The switch follows the mode selected in the Metra View. If the meter by Channel Mode is set to L/R, the options here are Left, Right, or both; if it is set to M/S, the options here become Mid, Side, or both. This way the History View always reflects the active channel mode of the main meter.

Peak button

Enables or disables the display of the Peak trace in the history window.

Dynamic button

Enables or disables the display of the Dynamic trace.

Note: This button does not store its state. After closing and reopening the plugin's editor, Freeze is always disabled by default.

Dynamic View Combined button

Switches the way dynamics traces are displayed in the History view. When the option is disabled, Dynamic Range or Crest Factor traces are shown separately for the left and right channels (or Mid and Side). When the button is enabled, the values from both channels are combined into a single trace and presented as one unified curve.

Dynamic Type - Crest Factor button

Toggles between Dynamic Range and Crest Factor display in the history graph. When active, the graph shows Crest Factor data instead of Dynamic Range.

This control is linked with the Crest Factor button in the Metra View, and changing either of them updates both views simultaneously.

Reset button

Clears all history buffers and starts accumulation from scratch.

Freeze button

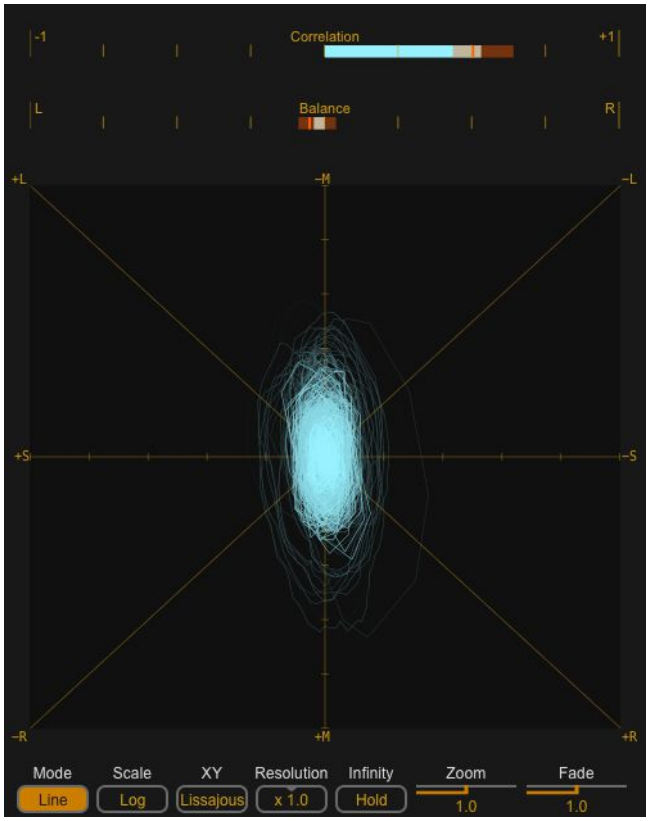
Stops the updating of history traces, allowing closer visual inspection of the displayed data.

Note: This button does not store its state. After closing and reopening the plugin's editor, Freeze is always disabled by default.

Mouse interaction

- Dragging in the central area (History Traces) adjusts the Overload Head, i.e. the reference position of 0 dB.
- Dragging on the time axis changes the visible time range (Time Range).
- Dragging on the histogram area changes the level scale range (Range).
- Double-clicking on any of these areas restores default values.
- Hovering the mouse over an interactive element highlights it, indicating that the parameter can be adjusted.

Goniometer view



Goniometer View visualizes the stereo image of the signal in real time, showing the phase relationship between channels. In this representation, the horizontal axis (X) corresponds to the sum of the channels (L+R), while the vertical axis (Y) corresponds to their difference (L−R). This makes the goniometer a practical tool for assessing mono compatibility, stereo width, and potential phase issues.

A mono signal (L=R) produces a clear vertical line, as both channels are identical and reinforce the sum component. A signal in opposite phase (L=−R) produces a horizontal line, indicating that the channels will cancel out when summed to mono. Elliptical shapes at different angles represent signals with partial correlation or unequal channel balance, while circular or diffuse patterns are typical of wide stereo images and decorrelated signals. The more compact and vertical the display, the greater the mono compatibility; the more it spreads horizontally, the higher the risk of phase problems.

The Goniometer View includes two additional indicators above the stereo plot:

- Correlation bar - it visualizes the instantaneous phase correlation between the left and right channels.
- Balance bar – it shows channel balance based on the relative RMS energy of the left and right channels.

These elements function exactly the same way as in the main Metra panel and provide an immediate reference for stereo coherence and channel distribution (see page 7).

Lissajous mode

The Lissajous mode displays the stereo signal in the form of a classic Lissajous figure, where the left channel is plotted on the horizontal axis (X) and the right channel on the vertical axis (Y). This mode complements the standard sum and difference representation by offering a more direct view of how both channels relate to each other at each moment in time.

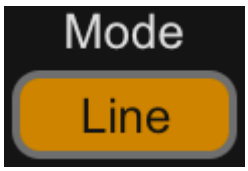
In the Lissajous display, a mono signal produces a straight diagonal line oriented from bottom left to top right because both channels carry the same waveform. A signal that is inverted between channels generates a diagonal line running from top left to bottom right. Wider stereo images form open, elliptical shapes that vary in size depending on the degree of channel separation, while decorrelated or diffuse material creates circular or cloud-like patterns.

This mode also makes it easier to identify channel imbalance. If one channel is consistently louder, the figure shifts toward the corresponding side of the display instead of remaining centered. Rapid and irregular shape changes indicate highly dynamic stereo behaviour, while a stable, repeating figure suggests coherent phase relationships and strong correlation between channels.

The Lissajous mode extends the functionality of the Goniometer by providing an additional analytical perspective that is especially useful for evaluating stereo width, phase coherence, channel equality and the behaviour of complex stereo processing such as modulation, spatial widening, mid-side encoding or artificial ambience generation. It works with all other Goniometer controls, including zoom, logarithmic scaling, trace fading and Infinity Hold, which makes it possible to inspect both short transients and long evolving stereo structures.

Controls

Line / Dot mode button

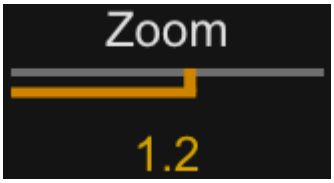


Switches the drawing style of the goniometer. In Line mode, the trace is drawn as continuous lines connecting successive points, giving a clear outline of the stereo image. In Dot mode, only discrete points are displayed, providing a more precise view of the density and spread of the signal.

Scale Log button

Switches the amplitude representation from a linear to a logarithmic scale. This can make the goniometer more sensitive to low-level signal details while compressing the representation of higher levels. In practice, the linear scale emphasizes higher-level signals, while the logarithmic scale provides greater sensitivity to quieter passages.

Zoom



Controls the scaling of the goniometer display. The signal image can be reduced or enlarged up to ±4×, effectively zooming in on the stereo field or shrinking it for an overall view. In practice this acts like a gain adjustment applied only to the display, with no effect on the audio signal itself.

Fade Time [s]

Sets the decay time of the trace, scaled in seconds. The value defines the time required for the trace to fade by 90%. Short settings cause the trace to disappear quickly, showing only the most recent activity, while longer settings allow the trace to persist, giving a smoother impression of the stereo image over time.

Resolution

Sets the density of points drawn in the stereo plot with three selectable settings:
x0.5 – reduced point density
x1.0 – standard resolution (default)
x2.0 – increased point density

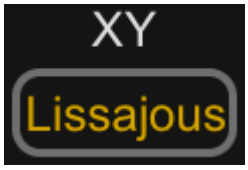
This control does not simply drop samples or decimate the signal. Instead, the goniometer uses a block condensation algorithm designed to preserve peak energy and stereo structure while reducing GPU load when necessary.

Infinity Hold button

When enabled, the goniometer trace does not fade out over time. The display keeps all signal traces indefinitely until the function is deactivated or the view is reset.

Note: This button does not store its state. After closing and reopening the plugin's editor, Hold is always disabled by default.

Lissajous button



The Lissajous button switches the Goniometer into Lissajous display mode, where the left channel is shown on the horizontal axis and the right channel on the vertical axis.
When enabled, the meter presents the stereo signal as a Lissajous figure, allowing a direct view of the phase relationship, channel balance and stereo width. Disabling the button returns the Goniometer to its standard sum and difference view.

Loudness view

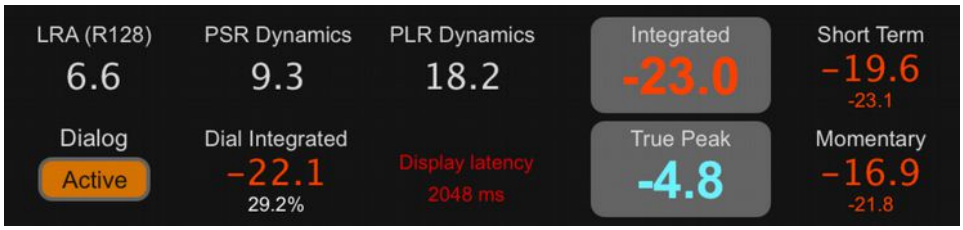
Loudness View provides a detailed analysis of program loudness based on EBU R128 recommendations and the ITU-R BS.1770 measurement algorithm. Unlike RMS, which is a purely mathematical measure of signal energy, loudness measurement is a perceptual method that uses K-weighting and gating to reflect the way humans perceive level. These standards were developed to replace traditional peak-based metering with a more reliable method, and as a result the plugin's readings comply with current broadcasting and streaming requirements for loudness normalization.

The view simultaneously presents momentary loudness, short-term loudness, and integrated loudness of the entire program. The meters allow observation of dynamic changes in 400 ms intervals (momentary loudness) and over about three seconds (short-term loudness), as well as tracking the long-term average of the program (integrated loudness). Alongside these, True Peak is also displayed, which through intersample calculation (oversampling) detects peaks not visible in standard digital peak meters but critical in D/A conversion and lossy compression.

Complementing the basic indicators are additional dynamic metrics: Loudness Range (LRA) describing the variability of loudness over time with outliers removed, as well as PLR and PSR, which show the relationships between peaks and average loudness. Together, they allow a quick assessment of both the macrodynamics of a program and the preservation of short-term transients.

The Loudness View is designed as a reference tool for mixing, mastering, and preparing material for broadcast or online distribution. PSP Metra operates exclusively in online mode, analyzing the signal in real time, which allows precise loudness and dynamics monitoring during playback in the DAW session.

Readout panel



At the top of the Loudness View there is a readout panel presenting all key loudness and dynamics measurements in numerical form. It provides the user with a consolidated set of values in one place, making it possible to evaluate both current loudness variations and the overall dynamics of the material in compliance with established standards.

According to the ITU-R BS.1770 algorithm and the EBU R128 recommendation, loudness is measured using time-integrated windows with K-weighted filtering and a defined degree of overlap. The three primary metrics — Momentary, Short-term, and Integrated Loudness — provide complementary perspectives on program loudness. Momentary and Short-term values are calculated in sliding windows with 75% overlap to ensure smooth continuity of readings, while Integrated Loudness is accumulated over the full duration of the program with gating applied to exclude silence and irrelevant low-level content.

Momentary

Momentary loudness is calculated using a 400 ms integration window with K-weighted filtering and 75% overlap between consecutive windows, resulting in updates every 100 ms. It reacts very quickly to level changes and represents the instantaneous perception of loudness. This metric is particularly useful for monitoring rapid fluctuations in the signal and for detecting short peaks in program material. The main readout shows the maximum value since the last refresh, while the smaller secondary number shows the current value. The readout is two-color, with the upper segment indicating values above the target.

Short-Term

Short-term loudness is measured over a sliding window of 3 seconds, also with K-weighted filtering. Updates are typically provided once per second, which offers a smoothed representation of loudness that better reflects human perception over short listening periods. Short-term loudness is less sensitive to transients than momentary loudness and is widely used for practical loudness evaluation during mixing and mastering. The main readout shows the maximum value since the last refresh, while the smaller secondary number shows the current value. The readout is two-color, with the upper segment indicating values above the target.

Integrated

Integrated loudness represents the overall average loudness of the entire program. It is calculated over the full duration of the signal with gating rules defined in EBU R128 (an absolute gate at −70 LUFS and a relative gate 10 LU below the average of the gated blocks), which exclude silence and very quiet passages from the calculation. This value corresponds

directly to the program loudness target (e.g., −23 LUFS for broadcast in Europe) and serves as the primary reference for loudness normalization. The readout shows the current value and is two-color, with the upper segment indicating values above the target.

These three readings are expressed in loudness units standardized by ITU-R BS.1770 and EBU R128. All measurements use either LUFS (Loudness Units relative to Full Scale) or the equivalent LKFS (Loudness K-weighted relative to Full Scale). Since the standard requires the use of a K-weighting filter, both units are technically identical and are used interchangeably in technical documents. Both represent absolute loudness levels in decibels relative to full scale (dBFS), with 1 LUFS corresponding to 1 dB.

In addition, the LU (Loudness Unit) is used as a relative measure: it expresses the deviation from a chosen reference point, such as −23 LUFS defined by EBU R128 as the default target. For example, a program measured at −21 LUFS may be expressed as +2 LU, meaning it is 2 dB louder than the reference.

The Scale Relative switch in PSP Metra allows the user to decide whether the values are displayed as absolute loudness in LUFS/LKFS, or as relative loudness in LU referenced to the selected target.

True Peak Max

The True Peak level (expressed in dBTP) represents the maximum amplitude of the continuous-time waveform, including peaks that may occur between samples during digital-to-analog conversion. In PSP Metra, this value is always derived as the maximum of both channels, ensuring a single reliable indicator of headroom. According to the ITU-R BS.1770 specification, the measurement method uses 4× oversampling (e.g., from 48 kHz to 192 kHz), followed by low-pass filtering and peak detection, to ensure accurate inter-sample peak estimation. This approach reconstructs the analog waveform more faithfully and ensures that the True Peak reading reflects the actual risk of clipping in real playback and encoding scenarios.

Oversampling beyond approximately 192 kHz becomes unnecessary, as at this resolution the sampled representation is already sufficiently detailed to capture true peak values with adequate accuracy.

PSR Dynamics (Peak-to-Short-term Loudness Ratio)

PSR is a practical measure of a signal's microdynamics. It describes the difference between the maximum peak level and the short-term loudness calculated in a 3-second sliding window (as specified by EBU R128, with loudness computed according to ITU-R BS.1770). Depending on implementation, the peak reference may be either sample peak or true peak (Annex 2 of BS.1770).

This metric indicates how much instantaneous dynamic headroom a signal has: high values (above 12 LU) mean preserved transients and a natural sound, while low values (below 8 LU) suggest excessive compression and a flattened character. PSR is read in real time, which means both the instantaneous readings and the lowest value registered across the entire program are of interest.Although AES e-Brief 373 recommends determining PSR with an immediate peak attack and a controlled decay to achieve more stable readings, this should be regarded only as a guideline rather than a standard. In practice, PSR can be calculated in different ways, depending on whether the reference is based on sample peaks or true peaks,

and on how the short-term peak window is defined. PSP Metra provides full flexibility in this respect – in the Setup panel the user can select the preferred measurement method:

- Sample Peak with 0.5 dB/s decay (default) – continuously tracks the sample peak with instantaneous attack and a controlled release at 0.5 dB per second. This method corresponds to the AES e-Brief 373 recommendation and produces a smoother PSR curve, although peaks older than three seconds may still influence the current reading.
- True Peak with 0.5 dB/s decay – the same method as Sample Peak with decay, but based on true peak detection. This provides a more accurate representation of inter-sample behavior while maintaining the same controlled decay characteristic.
- Sample Peak (last 3 s) – calculates PSR using the highest absolute sample value that occurred within the last three seconds.
- True Peak (last 3 s) – determines PSR based on the maximum true peak value detected in the last three seconds.

PLR Dynamics (Peak-to-Loudness Ratio)

PLR is defined as the difference between the maximum True Peak level and the integrated loudness of the entire program, where True Peak is measured according to ITU-R BS.1770 (Annex 2) and integrated loudness according to ITU-R BS.1770 / EBU R128. Although not part of the official standards, PLR is widely used in audio production as a convenient indicator of the relationship between peak levels and perceived average loudness.

High PLR values (12–15 LU or more) indicate a large gap between average loudness and peaks, giving a sense of openness and preserved dynamics. Medium values (8–12 LU) are typical of modern productions, while low values (below 8 LU) signify heavy compression, where the average loudness approaches peak levels and the program sounds flat.

PLR provides a single value for the entire program, allowing comparisons between recordings and predictions of how they will sound after loudness normalization. In practice, it helps to assess the degree of preserved overall dynamics and the likely listening impression.

Note: the word Dynamics is used as a label in the Loudness View for PSR, and also for PLR, not to be confused with the label Dynamic in the Basic View, which refers to overall Dynamic Range or Crest Factor.

LRA (Loudness Range)

LRA, as defined in EBU Tech 3342, describes the span of a program's loudness over time, i.e., its macrodynamics. It is calculated from the distribution of short-term loudness values (3-second window as specified by EBU R128, with loudness computed according to ITU-R BS.1770). Before the statistical analysis, a dual gating process is applied: first an absolute gate at −70 LUFS to remove silence, then a relative gate set 20 LU below the average of the gated values to exclude irrelevant low-level passages. From this filtered distribution, percentiles are determined — typically the 95th and the 10th — and their difference defines the LRA value, expressed in LU.

This means that LRA is not a single instantaneous measurement but a statistical range

representing where most of the program's loudness values lie. In PSP Metra, the numerical LRA value is displayed in the readout panel, while the corresponding loudness span is visualized on the loudness bar display, described later in this section.

A low LRA (3–6 LU) indicates very leveled material, a medium range (6–12 LU) characterizes music with balanced dynamics, and a high LRA (above 15 LU) reflects large loudness contrasts, typical of classical or film music. Interpreting LRA makes it possible to assess whether a program has an appropriate dynamic range for its intended medium and listening environment: low values ensure predictability, while high values emphasize dramaturgy but may require control in noisy conditions.

Optional Dialogue-Integrated Measurement (Dolby Dialogue Intelligence™)

An optional Dialogue-Integrated mode is available, based on Dolby's Dialogue Intelligence™ speech-gating algorithm. This mode detects and isolates speech segments in the signal, then measures Integrated loudness specifically for those dialogue sections rather than the entire mix. The goal is to provide a more perceptually relevant metric for spoken content, ensuring accurate loudness evaluation for dialogue-focused material.

This function is particularly useful not only for broadcast or streaming engineers, but also for podcast creators, YouTubers, and other content producers who aim to maintain consistent dialogue audibility and intelligibility across episodes or platforms.

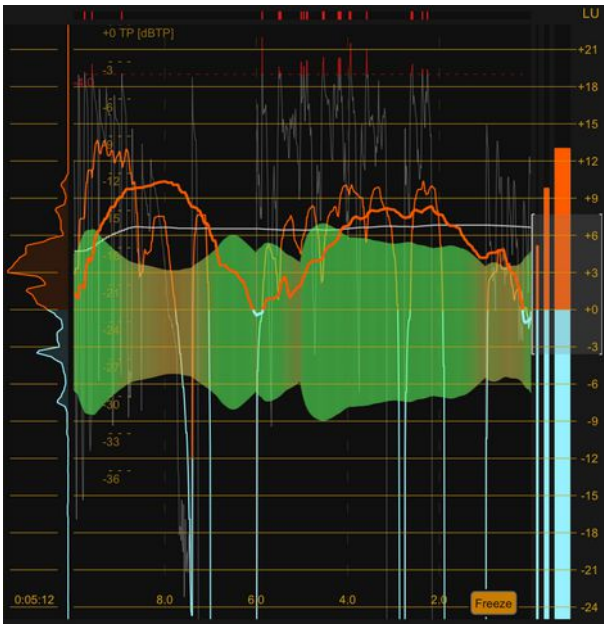
When enabled, Dialogue Integrated operates as a separate indicator dedicated solely to measuring the average loudness of detected speech segments. The main readout shows the Dialogue Integrated loudness value in LUFS, while the smaller auxiliary number displays the percentage of detected dialogue within the analyzed program since the last full reset of the measurement.

During active speech detection, the Dialogue Integrated readout is highlighted to indicate that dialogue segments are currently being analyzed. The Dialog button shows whether the dialogue detection function is active, and the current processing latency is displayed as Display latency 2048 ms.

All other loudness indicators such as Integrated, Short-Term, and Momentary continue to function normally, following their respective measurement algorithms and display timing.

Note: Enabling Dialogue-Integrated measurement introduces a 2048 ms delay to the overall loudness processing. This delay is required to align dialogue detection with the full loudness analysis and applies to all loudness-related visualizations, including Loudness View, Loudness History, Loudness Values View, and Loudness mode in Minimal View.

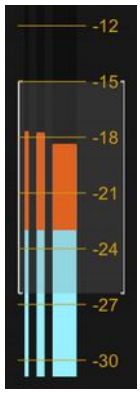
Loudness Display



The Loudness Display is the graphical core of the Loudness View, located directly below the numerical readout panel. It provides a real-time visual representation of loudness measurements and is divided into three main parts: vertical bar meters, a scrolling history trace, and a histogram of loudness distribution. All elements of the Loudness Display can be shown either in LUFS (absolute loudness units relative to full scale) or in LU (relative units referenced to the selected target), depending on the position of the Scale Relative switch. Each part of the display offers a different perspective on loudness monitoring, and together they form a complete visual overview of both the current loudness state and its evolution over time.

Loudness Bar Display

The Loudness Bar Display presents the three primary loudness metrics. The left bar, the narrowest, represents Integrated Loudness; the center bar shows Short-term Loudness; and the right bar, the widest, displays Momentary Loudness.



The bars change color once the signal exceeds the target level defined in the Setup view, allowing the user to instantly notice when the program surpasses the required loudness threshold. In addition, the display visualizes the span of Loudness Range (LRA), shown as a lightly shaded bracket-shaped area. This complements the numerical LRA value in the readout panel and provides an immediate visual impression of the program's dynamic span.

Loudness History

The Loudness History graph provides a scrolling display of loudness measurements over time, with a maximum span of 120 seconds. By default, the history shows Short-term Loudness, but it can also include additional traces such as Momentary, Integrated, True Peak, and Dynamics, giving the user the ability to compare multiple metrics on the same timeline

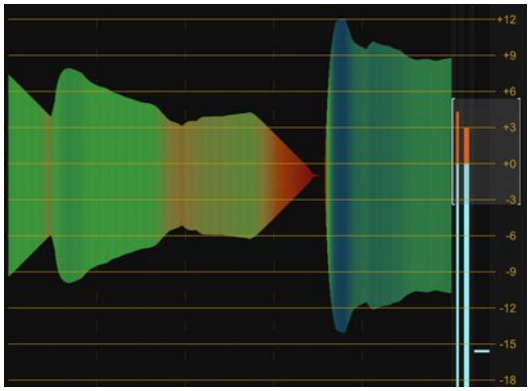
and observe how different aspects of loudness evolve within the program material.

Just like in the dedicated History View, the Loudness History graph does not allow scrolling backwards in time. The visible range is defined strictly by the Time Range parameter: increasing this value extends the view to cover a longer period but at the cost of reduced resolution, while decreasing it provides a more detailed view of shorter intervals.

The graph represents the bar meters as continuous line traces over time. Integrated Loudness is always displayed as a thick light-gray line, ensuring that it provides long-term context without interfering with the perception of other curves. Short-term and Momentary Loudness traces are shown as two-color lines, changing color in the same way as the bar meters when passing the target threshold.

True Peak can be displayed as a separate trace in the Loudness History graph and has its own dedicated scale on the left side of the display, distinguishing it from the other loudness curves. It is calculated according to the ITU-R BS.1770 standard using oversampling to detect inter-sample peaks and is expressed in dBTP. The trace is drawn as a two-color line, where red indicates that the signal has exceeded the True Peak Max threshold defined in the Setup panel.

As with the numerical readout, the True Peak trace is derived from both channels and always shows the maximum value, giving the user an immediate view of the most critical peak excursions.

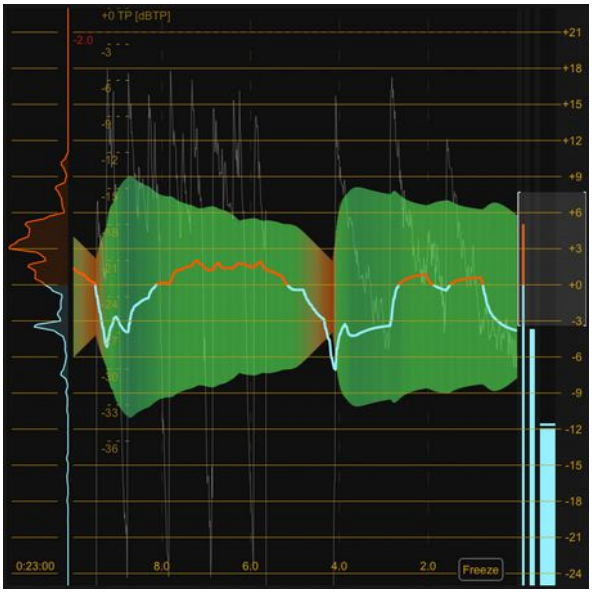


Dynamics in the history graph corresponds to the PSR (Peak-to-Short-term Loudness Ratio) measurement, but it is not displayed as a raw calculated value. The readings are smoothed with a one-pole filter using an attack time of 200 ms and a release time of 100 ms, which stabilizes the trace, reduces the impact of individual fast transients on the overall view, and at the same time allows rapid drops in microdynamics to be clearly revealed.

Visually, the trace is shown as a filled, color-coded area that changes dynamically with the PSR values. This design provides a clearer and more intuitive representation than a traditional line, making it easier to follow microdynamics over time. The color of this area is defined in the Setup panel via the Dynamics Color parameter, allowing the appearance to be customized to user preference.

Loudness Histogram

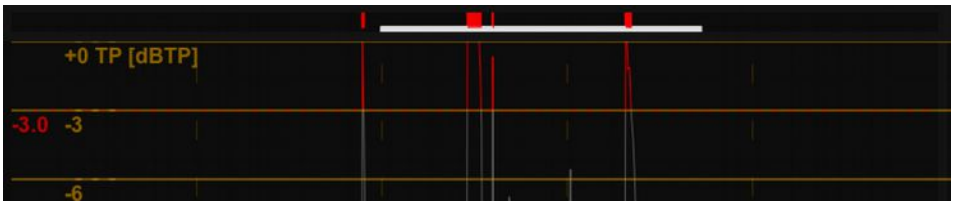
The Loudness Histogram in the Loudness Display shows the statistical distribution of loudness values accumulated since the last reset. The elapsed time from the most recent reset is displayed below the histogram, making it clear that the data always refers to the active measurement period. The histogram is generated in compliance with EBU Tech 3342, with loudness values computed according to the ITU-R BS.1770 algorithm and collected from successive 3-second Short-term windows. These values are then processed with both absolute and relative gating to remove silence and irrelevant low-level passages. What remains is a reliable representation of how often specific loudness levels occur within the program material. This view provides an intuitive statistical perspective that complements the numerical readouts and graphical traces, helping the user understand not only the current loudness but also its long-term distribution.



Scales: The vertical scales of the loudness history traces and histogram are expressed in LUFS or LU in Relative scale view, while the time is expressed in seconds [s].

Note: The Loudness history view does not allow scrolling backwards in time. The only way to extend the visible range is by increasing the Time Range parameter, which reduces the resolution of the display.

True Peak Overload and Dialog Strip



In addition, a True Peak Overload and Dialog Strip is displayed directly above the history graph, between the loudness readouts and the history display area. This narrow horizontal bar acts as a global timeline indicator synchronized with the history graph.

It marks in red the moments when the signal exceeds the True Peak Max threshold and highlights in white the sections where dialogue is detected, provided that the dialogue detection function is enabled.

The strip is always visible and time-synchronized with the history graph, allowing quick identification of overload events and dialogue segments regardless of the currently displayed trace details.

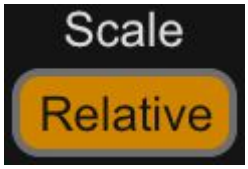
Controls

Loudness Preset

The Loudness Preset selector allows the user to choose a predefined set of measurement parameters that match common broadcasting and streaming standards. Selecting a preset automatically adjusts the target loudness level, gating rules, integration settings, and True Peak limits according to the chosen specification. Typical presets include standards such as EBU R128 (–23 LUFS), ATSC A/85 (–24 LKFS), or streaming platform references like Spotify (–14 LUFS). The currently active preset defines the reference point for both numerical values and graphical displays across the entire Loudness View.

The currently selected preset is always shown as a label directly on the control. If the user modifies any of the parameters associated with the preset, the label switches to User Set, and the original preset name disappears, indicating that the configuration no longer exactly matches a predefined standard.

Scale Relative



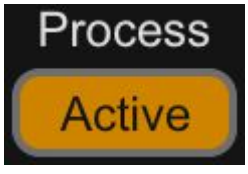
The Scale Relative switch defines whether loudness values are shown as LUFS (absolute, relative to full scale) or as LU (relative to the selected loudness target). This setting applies consistently across the bar display, history graph, and histogram.

Trace Selectors

The set of selector buttons determines which traces are displayed on the loudnes history graph:

M (Momentary), S (Short-term), **I** (Integrated), **TP** (True Peak), and **D** (Dynamics). Each button toggles the visibility of its corresponding trace, making it possible to display any combination of measurements simultaneously.

Process



The Process enables or disables the loudness measurement engine. When disabled, the Loudness View stops analyzing the signal and freezes all numerical and graphical updates. When re-enabled, the analysis continues from the current state without resetting accumulated data.

Dialog button

Activates the Dialogue Detection function based on the Dolby Dialogue Intelligence™ algorithm. When active, the system continuously analyzes the input signal to identify sections containing spoken dialogue. Detected dialogue segments are then used for the Dialogue Integrated loudness measurement.

When the button is lit and marked Active, dialogue detection is enabled. When unlit, all related dialogue analysis and visual indicators are disabled.

Reset button

The red Reset button clears the entire Loudness View measurement. It not only resets the history graph but also zeroes all loudness data, including Integrated values and statistical accumulations, and clears all internal buffers. After activation, the plugin begins accumulating loudness data again as if starting a new measurement session.

Freeze button

Stops the updating of history traces, allowing closer visual inspection of the displayed data.

Note: This button does not store its state. After closing and reopening the plugin's editor, Freeze is always disabled by default.

Mouse interaction

- Dragging in the central area (Loudness history) adjusts the loudnes overload, i.e. the reference position of 0 LUFS.
- Dragging on the time axis changes the visible time range (Time Range).
- Dragging on the histogram area changes the level loudness scale range (Range).
- Double-clicking on any of these areas restores default values.
- Hovering the mouse over an interactive element highlights it, indicating that the parameter can be adjusted.

Loudness Values View 

This view provides a compact, numerical-only display of all loudness and dynamics readouts available in the Loudness View (see page 23). It replicates the same measurement data without graphical elements or history traces, allowing precise loudness monitoring in a minimal, space-saving layout without opening the full Loudness View window.

The panel presents Momentary, Short-Term, Integrated, and True Peak loudness values, as well as LRA (R128), PSR, and PLR dynamics indicators. The unit display shows whether the loudness scale is expressed in LUFS or LU when operating in Relative mode.

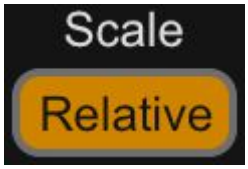
Controls

The full description of these controls can be found in the Controls paragraph in the Loudness View section.

Dialog button

Activates the dialogue detection function.

Scale button



Switches between Absolute (LUFS) and Relative (LU) scale modes.

Proc button

Enables or disables loudness processing.

Reset button

Resets all loudness measurements.

Mouse interaction

Double-clicking on the Loudness label area (including the unit display) minimizes the panel to a compact single-line view showing only the numerical loudness values. Double-clicking again restores the full layout.

Compliance with EBU R128 and Related Standards of Loudness

All loudness-related standards, recommendations, and technical documents are maintained by the European Broadcasting Union (EBU) and can be accessed through the official EBU Loudness Hub. This central resource provides comprehensive access to all documentation related to EBU R128 and its associated technical papers.

Our plugin fully implements and conforms to the requirements of EBU R128 (version 5.0, November 2023) as well as associated technical recommendations: EBU Tech 3341 (Loudness Metering – EBU Mode), EBU Tech 3342 (Loudness Range), EBU Tech 3343 (Practical Guidelines), and ITU-R BS.1770.

Units & Time-scale Measurements

- Units: Uses LUFS/LKFS (absolute, dBFS with K-weighting) and LU (relative) seamlessly and in line with standards (EBU R128 overview on Wikipedia).
- Momentary, Short-Term, and Integrated loudness computed per EBU Tech 3341 (EBU Tech 3341 specification on EBU Tech site).

Gating and Loudness Range (LRA)

- Integrated Loudness applies dual gating: absolute (−70 LUFS) and relative (−10 LU) per ITU-R BS.1770 / EBU R128 (ITU-R BS.1770 recommendation text).
- Loudness Range (LRA) measured per EBU Tech 3342, computing the difference between the 95th and 10th percentiles of gated short-term loudness distribution (EBU Tech 3342 specification on EBU Tech site).

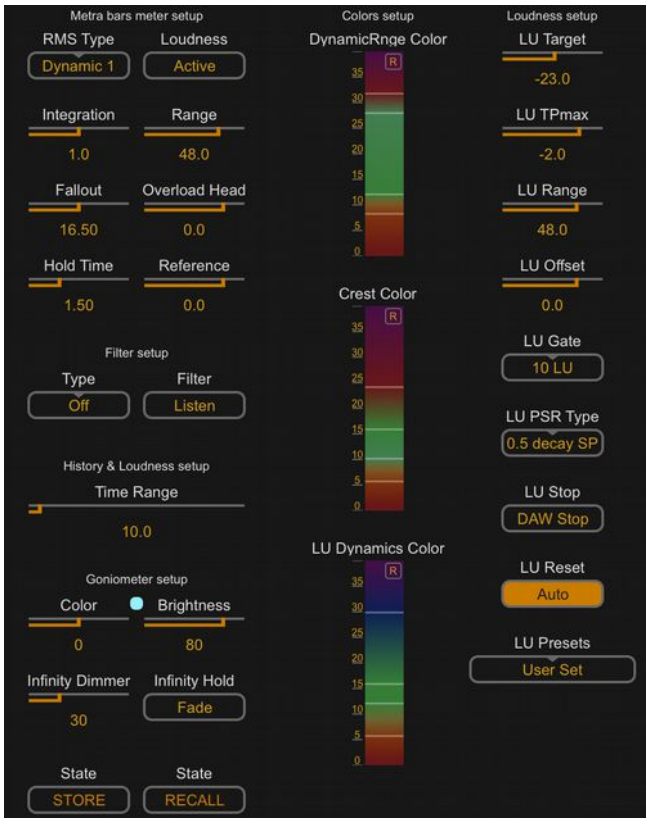
Test Files & Conformance Validation

- The plugin has been successfully verified using the official EBU Loudness Test Set, containing dozens of audio files specifically designed to validate compliance with EBU Tech 3341 (Loudness Metering: 'EBU Mode' metering) and 3342 (EBU Loudness Test Set description).

Logo Usage

- In accordance with the EBU's official "Rules for the use of the EBU R128 logo", any manufacturer whose product complies with EBU R128 or related loudness metering recommendations (EBU Tech 3341, 3342, 3344) is permitted to display the EBU R128 logo as a mark of technical compliance. Use of the logo is free of charge and based on self-declaration (EBU R128 Logo Rules of Use PDF).
- Importantly, the use of the logo does not imply endorsement or certification by EBU. It solely indicates that the product has been designed in accordance with the technical specifications of EBU R128 and related documents.
- By following these rules, manufacturers demonstrate transparency and compliance. Our plugin has been validated using the EBU Loudness Test Set and therefore meets all the necessary conditions to display the logo legitimately.

Setup view



Metra bars meter Setup

The Bar Meter Setup section contains two groups of parameters: Ballistics, which define how the level and peak meters respond in views, and Scale, which determines the meter scale and its visual presentation.

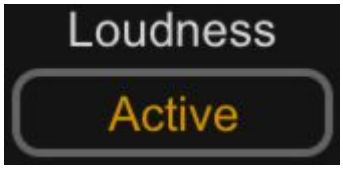
RMS Type

The RMS type control is a drop-down list that defines the algorithm used for the outer level bars and their corresponding traces in the History view.

In Dynamic 1 mode, a single-pole, first-order integration filter is applied, resulting in a faster but less smoothed response. Dynamic 2 uses a second-order integration filter, producing smoother and more stable readings. VU emulates the ballistics of a classic VU meter, following its characteristic timing. Changing this setting directly affects the RMS/VU bars in the Metra view as well as the corresponding trace drawn in the History graph.

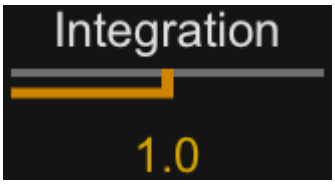
The currently selected option is always shown as a label directly on the control.

Loudness Mode Activation button



Activates the Loudness mode in the Metra View. When enabled, the standard dynamics bars (Dynamic Range and Crest) are replaced with loudness bars showing Momentary (M), Short-Term (S), and Integrated (I) levels (see site 11).

Integration



Sets the integration time of the RMS or VU filters.

Shorter times result in faster tracking of level changes and a more nervous meter response, while longer times provide smoother readings that better reflect the perceived, “musical” character of loudness. This parameter influences both the bar behavior in the Basic view and the corresponding RMS/VU trace in the History graph.

Peak Fallout

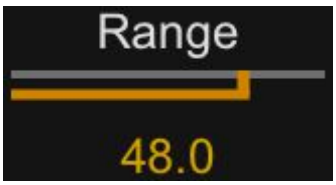
Specifies the decay speed of the peak indicators in dB per second and applies to all peak measurement modes.

Higher values make the peak markers drop faster after a transient, giving a more technical and dynamic impression, while lower values slow down the decay and make it easier to monitor maximum levels.

Hold Time

Defines the retention time of all maximum values when the Hold button is not enabled in the Basic view. Once this time has elapsed, the maxima are automatically cleared and the meters return to showing current values. If Hold is activated in the Metra view, the values remain latched until they are reset manually.

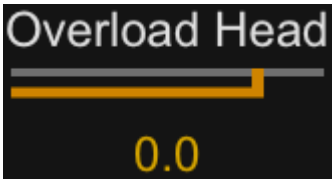
Range



Defines the total span of the scale in decibels.

A narrower range allows more precise observation of levels close to the reference point, while a wider range makes it possible to monitor the full dynamics of the signal. Adjustments made in the Setup are immediately reflected in the Metra bars and in the History traces, and this parameter corresponds to changes made interactively in the histogram area of the graph.

Overload Head



Sets the reference position of the 0 dB line used for headroom evaluation and overload indication. It can be adjusted directly in the Setup window or interactively by dragging the 0 dB line on the History graph; both methods are linked, so a change in one is immediately reflected in the other.

Reference

Defines the reference point of the scale in decibels, relative to which all other values are displayed.

Changing this parameter shifts the scale itself and affects the interpretation of overloads, but it does not alter the actual 0 dB point of the measured signal.

Filter Setup

Type

This drop-down list allows the user to select the type of weighting filter applied for signal analysis.

The default option Off disables additional filtering, while three standard characteristics are available: A, C, and K-weithing. The A filter reflects the sensitivity of human hearing at low levels and is often used in noise measurements. The C filter has a wider bandwidth and is more suitable for higher-level signals. The K filter, defined in ITU-R BS.1770, is used in modern loudness measurements and forms the basis of current broadcast standards. It should be emphasized that regardless of the choice made here, the K-weighting filter is always applied internally for loudness measurement in PSP Metra and cannot be disabled – the other options only apply to additional filtering for analysis and listening purposes.

The currently selected option is always shown as a label directly on the control.

Listen button

Enables monitoring of the signal processed with the selected weighting filter. This function allows the user to hear how the filter affects the audio signal and can be useful as a control tool. It should be noted that PSP Metra does not process or alter the sound during normal operation, and listening to the weighted signal is only an additional feature, intentionally activated by the user.

Time Range (History and Loudness views)

Defines the maximum time span of the displayed traces, with values up to 120 seconds.

A shorter range allows for more detailed observation of short fragments, while a longer range makes it possible to follow overall trends at the expense of detail. This parameter corresponds to the interactive adjustment of the time axis range made with the mouse directly on the History or Loudness graph area.

Goniometer Color

Color

Defines the color used for drawing the goniometer trace. The palette is limited and consistent with the overall PSP Metra color scheme. The adjustment is made with an internal scale ranging from –100 to +100, which does not represent percentages or color codes directly but rather shifts the chosen hue within the available palette. The scale itself has no physical meaning beyond controlling the visual appearance.

Brightness

Adjusts the intensity of the goniometer trace. Like the color control, brightness is defined on a scale from 0 to 100, where a value of 80 corresponds to the default brightness used throughout PSP Metra. This scale is not tied to absolute luminance but serves as a relative adjustment within the plugin's graphical system.

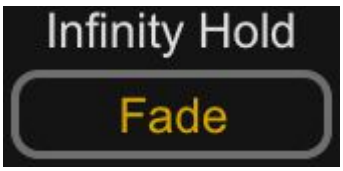
A color preview window, located between the Color and Brightness sliders, shows the currently selected trace color.

Double-clicking on the Color or Brightness controls resets their values to the default state.

Infinity Dimmer

The Infinity Dimmer adjusts the relative brightness of the Infinity Hold trace. The value does not represent a physical unit. It sets a normalized brightness level that determines how visible the long lasting trace remains during most of its lifespan. Lower settings produce a dimmer and more subtle trace, while higher settings make the retained history line more pronounced. This parameter affects both operating modes of the Infinity Hold function, since it defines the baseline brightness that the trace maintains before its final fade out.

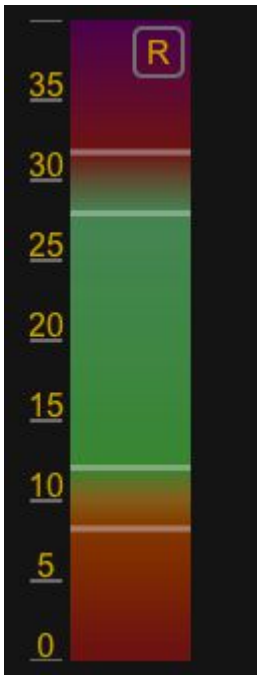
Infinity Hold Fade



The Infinity Hold Fade enables a long lasting trace of the goniometer history. When this option is active, the trace first fades with the speed set by the Fade control in the Goniometer view until it reaches the Dimmed Level, and then continues to fade much more slowly, becoming nearly invisible after approximately 30 seconds. When the option is inactive, the trace fades only with the speed set by the Fade control and remains at the Dimmed Level.

Colors setup

Dynamic Range Color and Crest Factor Color

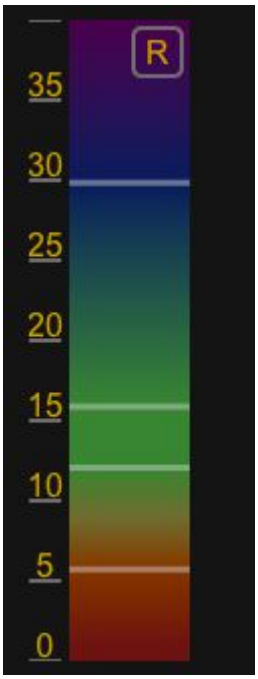


These settings allow defining the ranges (in decibels) where the color of the Dynamic Range or Crest Factor bars and traces changes. The two meters are configured independently, so Dynamic Range and Crest Factor can each have their own color thresholds.

The colors are fixed and cannot be altered, but the user can adjust four threshold levels that determine the boundaries of transitions between successive colors.

From the bottom up, the first threshold defines the red area, the next sets the transition to green (from the bottom), the following defines the second green zone (from the top), and the last upper threshold sets the red area at the top of the scale. In this way, the four adjustable values define the limits of each color zone and their transition areas. The minimum distance allowed between consecutive thresholds is 2 dB, which is automatically enforced by the control – if one threshold is moved too close to another, the remaining values are shifted accordingly to maintain the required spacing.

Loudnes (LU) Dynamics Color



Defines the ranges in which the color of the Dynamics (PSR) trace in the Loudness History changes.

This setting allow defining the ranges (in LU) where the color of the Dynamics (PSR) traces changes.

The colors are fixed and cannot be altered, but the user can adjust four threshold levels that determine the boundaries of transitions between successive colors.

From the bottom up, the first threshold defines the red area, the next sets the transition to green (from the bottom), the following defines the second green zone (from the top), and the last upper threshold sets the dark blue zone at the top of the scale. In this way, the four adjustable values define the limits of each color zone and their transition areas. The minimum distance allowed between consecutive thresholds is 2 dB, which is automatically enforced by the control – if one threshold is moved too close to another, the remaining values are shifted accordingly to maintain the required spacing.

Note: Each color setting also includes an R button that restores the default threshold values when pressed.

Loudness setup

LU Target

Defines the target loudness level in LUFS.

Typical values are determined by broadcasting and streaming requirements (e.g., EBU R128, ATSC A/85, streaming platforms) and are provided in the Loudness presets drop-down list on the Loudness view.

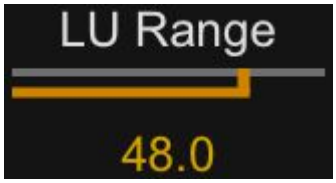
This value is used as the reference point for all loudness measurements and as the threshold against which loudness bars and traces change color when exceeded.

LU TPmax

Defines the maximum permitted True Peak level in dBTP.

TPmax values are specified by broadcasting and streaming requirements and are also included in the Loudness presets. Exceeding this value is indicated by a red color change on the True Peak trace as well as by markers in the True Peak Overload Strip.

LU Range



Defines the loudness scale span in LU displayed on the graph.

Adjusting this value narrows or widens the visible loudness range in the Loudness Display.

LU Offset

Defines the shift of the 0 LUFS point on the graph.

This setting allows adjusting the loudness axis reference to user requirements or applicable standards without changing the actual measurement values.

LU Gate

This drop-down list selects the type of relative gating used as the second stage of loudness measurement.

Available options include relative gating 10 LU below the average value (as required by EBU R128), an alternative threshold of –8 LU, and the option to disable this stage entirely.

The currently selected option is always shown as a label directly on the control.

LU PSR Type

This drop-down list defines the method for calculating the Peak-to-Short-term Loudness Ratio (PSR).

The available methods have already been described in detail in the Loudness View section, and the control here allows selecting among them.

The currently selected option is always shown as a label directly on the control.

Auto Stop button

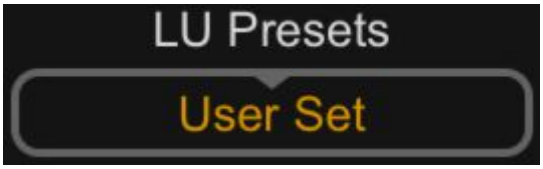
The LU Stop (Auto Stop on DAW Stop) button determines whether loudness measurement should automatically stop when playback in the DAW host is stopped.

Enabling this option ensures that each playback pass is measured independently and prevents unwanted accumulation of data across multiple playback sessions. This option is disabled by default.

Auto Reset on Play button

The Auto Reset button activates automatic clearing of loudness data when playback is restarted in the host application. This ensures that each playback pass is measured independently, without being affected by previous runs. When disabled, loudness data continues accumulating across successive playbacks until manually reset with the red Reset (X) button. This option is enabled by default.

Loudness (LU) Preset



The Loudness Preset selector allows the user to choose a predefined set of measurement parameters that match common broadcasting and streaming standards. Selecting a preset automatically adjusts the target loudness level, gating rules, integration settings, and True Peak limits according to the chosen specification.

This selector is identical to the one available in the Loudness View, and its full description can be found on page 30.

Store/Recall Setup state

These buttons save and restore the complete state of the plugin, including all configuration parameters and the current panel layout. They are designed for quickly transferring settings between different instances of the plugin or restoring a saved working setup within the same session. All parameters are stored in the plugin's preferences, allowing the full state to be recalled even after restarting the DAW.

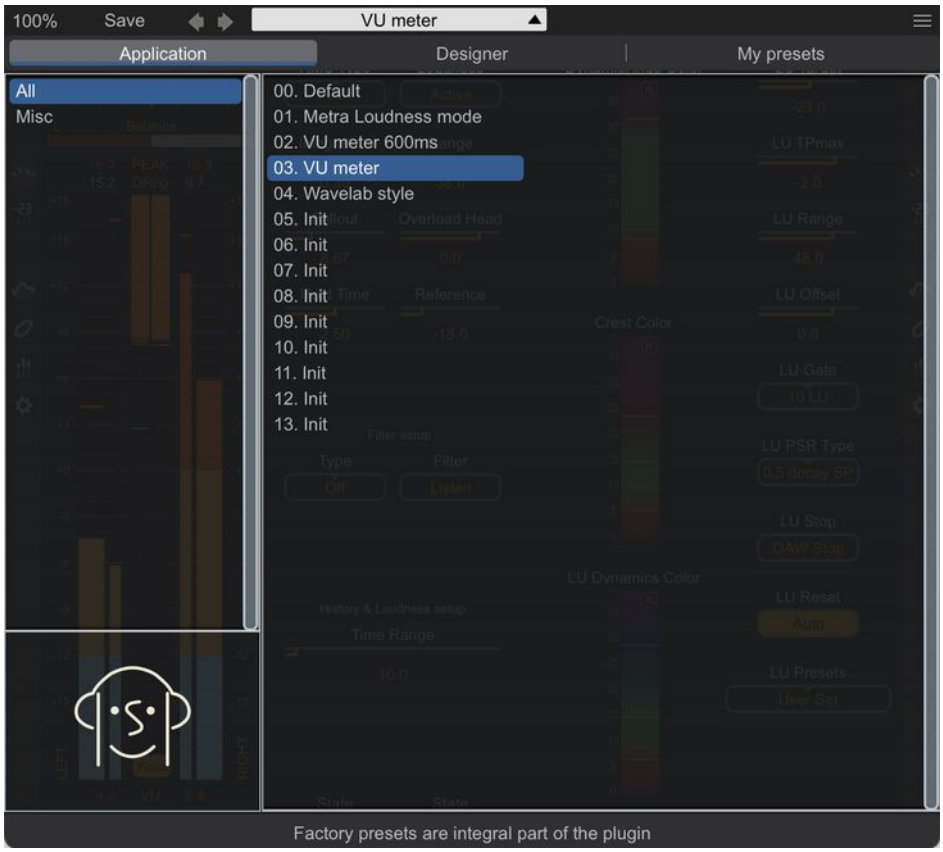
Store - saves the complete plugin state into internal memory.

Recall - retrieves the previously stored plugin state and restores them in the current instance.

Preset Handling & View Options

We have provided PSP Metra with a selection of factory presets. These presets can be used as a starting point for further adjustments, or for quick “drop-ins” on certain tracks.

You can access the PSP Metra presets from the PSPaudioware standard PRESET BAR at the top of the plug-in interface.



Preset Browser

PSP Metra features a comprehensive new preset management and browser system. To access the preset browser, you click the preset name window at the top of the plug-in (which displays 'Default' when the plug-in loads).

The new preset management bar has three main categories which can be accessed with the tabs at the top of the preset browser: **Application**, **Designer**, and **My presets**.

Application - shows all factory built-in presets grouping by application.

< *Factory presets are built into the plugin and cannot be directly edited! You can adjust them and save separately as user presets.* >

Designer - shows all factory built-in presets grouped by patch designer.

My presets - shows only user presets.
This view shows all of the presets you have created and saved, or downloaded and added to your custom presets for PSP Metra.
To add categories to the preset list, you can create new subfolders in the preset directory.

For Windows users, this is located at:

C:\Users\Username\Documents\PSPaudioware.com\User Presets\PSP Metra

For Mac users, this is located at:

~/Documents/PSPaudioware.com/User Presets/PSP Metra

< *You can always check the exact path by clicking on the "Show file in Finder" tab at the bottom of the preset browser window.* >

To select a preset, click a preset name in the right window. When clicked, the preset will be applied so that you can audition it. To confirm the preset choice, you can click the preset name once more to load it.

Each preset has its own picture. You can click on it to open the patch designer's website.

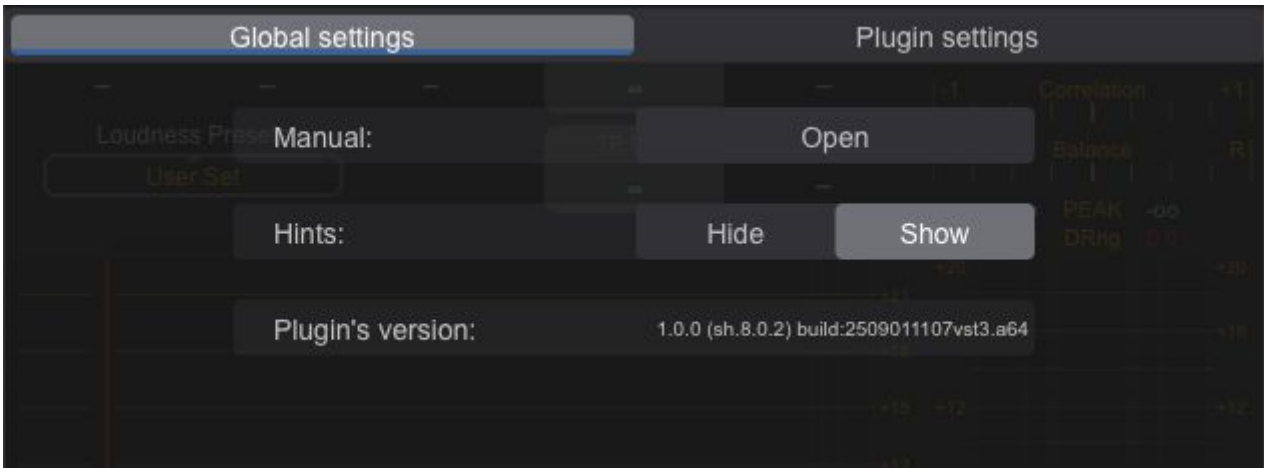
100% GUI resizing

PSP Metra's window size is easily changed to suit your needs. To change the GUI zoom factor, simply hover your mouse over the zoom percentage number and scroll up or down with your mouse wheel or a two-finger touch on your touchpad.

Double-click the size number to reset the window to the default size of 100%. You can also resize the window simply by dragging its right bottom corner. For quick and precise size adjustments, single-click on the size number to pop up a menu of commonly-used sizes.

CONFIG section

When clicking the three parallel lines icon in the top right corner will open the **Global/Plugin settongs** menu. Here, you can open the manual, check the current plug-in version number, and choose to hide or show mouse-over hints. Click anywhere in the window to exit.



Specifications

- Double precision floating point computations.
- 32 and 64 bit floating point audio streams supported.
- Supports project sample rates up to 768 kHz.

Licensing / System Requirements

In order to run PSP Metra, you need to install the free **iLok License Manager** application, but you don't need a hardware iLok key (“dongle”). By default we provide 3 licenses which can be activated in 3 separate locations, each of which can be either a computer or an iLok dongle (2nd generation or above). You can move these licenses at any time using PACE's iLok License Manager software.

Windows

VST

- Windows 7 – Windows 11
- 64-bit VST3 compatible application

VST3

- Windows 7 – Windows 11
- 64-bit VST3 compatible application

AAX

- Windows 7 – Windows 11
- 64-bit Pro Tools

All DAWs

- Up to date iLok License Manager application installed (iLok key not required)

macOS Intel or macOS AppleSilicon

AudioUnit

- macOS 10.14 – macOS 26 Tahoe
- 64-bit AudioUnit compatible host application

VST

- macOS 10.14 – macOS 26 Tahoe
- 64-bit VST3 compatible application

VST3

- macOS 10.14 – macOS 26 Tahoe
- 64-bit VST3 compatible host application

AAX

- macOS 10.14 – macOS 26 Tahoe
- 64-bit Pro Tools

All DAWs

- Up to date iLok License Manager application installed (iLok key not required)

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Support

If you have any questions about any of our plug-ins, please visit our website:

www.PSPaudioware.com

Where you can find the latest product information, free software updates, online support forum and answers to the most frequently asked questions.

Problems with the installation, activation or authorization?
Please watch our troubleshooting video tutorials on our YouTube channel.

You can also contact us by e-mail: support@PSPaudioware.com.
We will gladly answer all of your questions. As a rule we respond within 24 hours.

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