dpMeterXT 3

Manual

TBProAudio 2024

1 Introduction

dpMeterXT is a loudness metering DAW plug-in and application fully compliant with the ITU-R BS.1770-4, EBU R128-2014, ATSC A/85 and several other region-specific loudness standards.
dpMeterXT supports multiple channel configurations, from 1.0 up to 9.1/10.0, depending on your system configuration or DAW capabilities.

dpMeterXT supports program gating (according EBU R128 or ITU-R BS.1770) and dialog gating. Therefore it integrates the Dolby Labs reference code,
https://www.dolby.com/us/en/technologies/speech-gating-reference-code.aspx

dpMeterXT internal measurement interval is 100ms (data logging, graphs). Display is updated every 30ms, automation data every 50ms.

2 Features

dpMeterXT offers the following features:

- click-free 64-bit internal processing
- multi channel metering: up to 10 channels, multiple channel configurations
- supports all relevant loudness measurement standards
- multiple presets
- integrated, short term, momentary, TP/peak and LRA/PLR/PSR
- DIAL (dialog gaiting): IL, SL, dialog percentage, loudness range (dialog gated)
- True Peak measurement based on ITU BS1770-4
- K/A/B/C/M/user-defined weighting filter
- extensive alert configuration
- continuous/synced measurement
- record metering results as automation data
- data in memory is stored with DAW project
- large and accurate live meters
- loudness history graph
- reports and CSV data export
- scalable GUI
- customizable GUI colors
- adjustable pre-gain
- loudness matching
- HQ TP limiter

3 Minimum System Requirements

- Windows 7, OpenGL 2 GFX card
- Mac OS X 10.11, Metal GFX card
- SSE2 CPU
- Win: 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AAX
- OS X: 64 Bit VST, 64 Bit VST3, 64 Bit AU, 64 Bit AAX
- Tested with: Cockos Reaper, Steinberg Cubase/Nuendo/Wavelab 6+, FL Studio 12+, PT2018+, Reason 9.5+, Studio One, Ableton Live
- For latest information please visit www.tbproaudio.de

4 Interface

4.1 General Layout

The interface of dpMeterXT is divided into 3 areas:

The top panel provides functions to adjust the interface, create reports and to manage presets

The left panel shows readout values like IL, TruePeak and Time

The right panel shows either the meters or the loudness graph

GUI Resize/Scale (bottom right corner): mouse drag resizes the GUI, ctrl mouse drag scales the GUI. Double click set GUI size to default, ctrl double click sets GUI scale to default.

4.2 Top Panel

1) Plugin Menu: Information about the plugin, online version check, online change log, and tool tip switch.

2) Show/Hide Meter/Graph Panel: reduces the interface to just the numerical readout panel

3) Play: if sync is off, it starts/stops the metering

4) Reset: resets measurement

5) Sync: measurement is reset before host starts playing (not available for standalone application)

6) Write Automation Data: enables export of automation data, please refer to your host manual how to setup automation data recording

7) Pre-Gain: adds gain before measurement, can be set automatically by loudness/peak match buttons

8) Meter/Graph Panel: switches between meter and graph panel

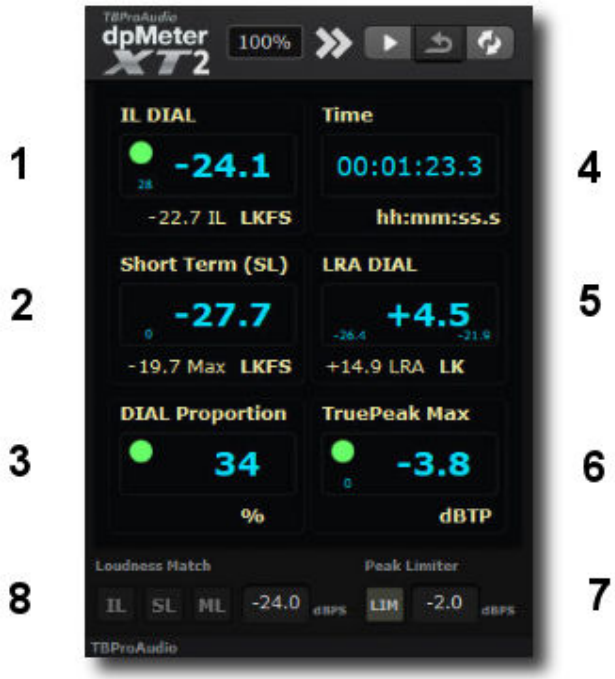
9) Settings: opens/closes settings window

10) Export History Data: exports loudness data as csv file, details of csv format are configured under Settings->Misc

11) Save Report: saves measurement report as txt file

12) Preset Menu: dpMeterXT comes with 40+ presets supporting different measurement standards, loads and saves presets

4.3 Readout Panel



1) Integrated (IL): displays integrated loudness (or IL dialog), small led in the top-left corner indicates if value is in range, small number below counts alerts.

2) Short Term (SL): displays short term loudness, small led in the top-left corner indicates if value is in range, small number below counts alerts, value below displays max value
3) Momentary (ML)/Dialog Percentage: displays momentary loudness or dialog percentage value in percent (if dialog gating is enabled), small number below counts alerts, value below displays max value

4) Time: displays either elapsed, time code or system time

5) Dynamics Display: shows current loudness range (LRA/PLR/PSR/LRA Dialog) value, small numbers left and right show min and max values of LRA algorithm, value below shows PSR or LRA.

6) TruePeak/Peak: displays either Peak or TruePeak max value, small number below counts alerts.

7) Peak/TP Limiter and peak limit: Enables HQ Peak/TP limiter and sets limiter ceiling. Using the limiter adds 512 samples delay to the FX chain, which is usually automatically compensated by DAW.

8) Loudness Match IL/SL/ML and Loudness Target: By clicking on one of the buttons (IL/SL/ML) the pre-gain is adjusted to match current IL/SL Max/ML Max readout with the given loudness target level.

Meter Panel

1) SL/ML/ LRA/LRA Dial/PLR/PSR: max values

2) SL/ML/LRA/LRA Dial/PLR/PSR: current values

3) 10 Channel TP/Peak meter: current values

4) TP/Peak values: max values

5) Channel names: according current routing configuration

4.4 Loudness Graph Panel

1) Loudness Distribution Graph: displays loudness/dynamics distribution of current time window

2) Loudness Graph: display IL/SL/ML/IL Dialog graphs including LRA/PLR/PSR/LRA Dialog and target levels, all elements can be witched on inddivually.
For better visibility dpMeterXT centers the current PLR/PSR map around the target level for IL or SL.

3) Overview: shows complete SL/ML/PLR/PSR measurement

4) Info box: depending on mouse/time position readout values are displayed

5) Scroll button: if enabled graph is scrolling automatically, in sync mode scroll mode is enabled automatically

6) Time Window: set the size of time window for the loudness graph, 15sec to 24hours

7) Set/Clear Marker: sets marker (green vertical line), is used to mark certain loudness situations

8) Store/Clear Memory: saves current loudness data (SL/ML) into a backup memory, used to compare two loudness curves

9) Show/Hide Graphs: show/hides IL/SL/ML/LRA/PLR/PSR graphs, show/hide display of loudness/peak and dynamic range alerts, show/hide loudness target level, show/hide Dialog presence, show/hide SL/ML memory

10) Distribution Mode Menu: selects off/IL/SL/ML/LRA/PLR/PSR distribution graphs

4.4.1 Mouse operations:

Mouse click and drag up/down: increases/decreases min/max values of graph display

Mouse drag: moves graph forward/backward in time. Please to note that auto scroll will be disabled

Mouse wheel: increases/decreases time window, ctrl moves graph forward/backward in time.

Shift Mouse Wheel: increases/decreases graph display range

4.5 Settings

4.5.1 Main Page 1

4.5.1.1 Measurement

Gate Mode: selects measurement specific loudness gating algorithm according specification.

S-Window: Short Term integration time

M-Window: Momentary integration time

Measurement Mode: SUM (summing, Standard), AES17 or AVG (average)

4.5.1.2 Channel Settings

Channel-Configuration: selects number of channels used for measurement, dpMeterXT supports 1-10 channels

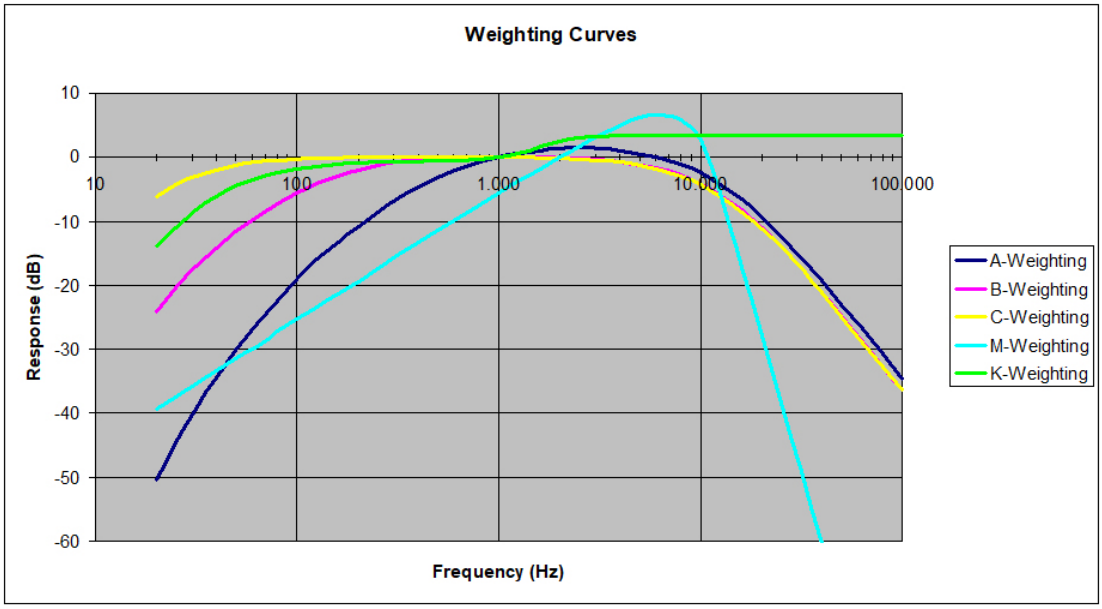
Channel-Routing: affect the channel display and weighting, dpMeterXT support over 30 routing configurations. Please refer to the manual of your host regarding support configurations

Unit: selects unit display, dB (used for music productions), LU (EBU unit), LK (ITU unit)

Offset: sets reference level for current measurement, if 0 all values are display as dBFS/LUFS/LKFS

4.5.1.3 Weighting Filter

Mode: selects current weighting filter, K/A/B/C/M/A+3/Custom filters are supported.
K/A/B/C filters are defined from 20Hz to 100kHz with a tolerance of +/- 0.1dB.
M filter is defined from 20Hz to 100kHz with a tolerance of +/- 0.3dB [20Hz-22kHz] and +/- 2dB [22kHz-100kHz].



LowCut Frequency: used for custom filter
LowCut Slope: used for custom filter
HighCut Frequency: used for custom filter
HighCut Slope: used for custom filter

4.5.2 Main Page 2

Dyn. Disp: selects either LRA (EBU R128)/LRA Dialog, PLR or PSR for the readout (if Dialog gating is used LRA Dialog is displayed, otherwise LRA (EBU R128)

Peak Mode: selects either Peak or TruePeak (according BS1170) measurement.

Timer Mode: selects either Elapsed (timer starts always with 00:00:00.0) or Time Code (from host) or System (system time)

4.5.3 Alerts Page 1/2

dpMeterXT provides min/max alerts for IL/IL Dial/SL and ML., max alerts for Peak/TP, min alerts for LRA/LRA Dial/PLR/PSR and Dialog percentage.
Mode: Each alert can be either off, on (triggered once) or in auto (triggered permanently) mode.
Level: defines the alert level in dbFS
Period: “instant” triggers the alert instantly otherwise if the trigger for the alert is present for x seconds.

4.5.4 GUI1 Configuration Page

4.5.4.1 SL/ML Meter/Graph Settings

Adjusts min/max levels for meter/graph display. In addition over level and color split levels are set.
Left mouse click on color swatch opens color dialog.
Alt mouse click on color swatch opens edit field with Web Color code.
Shift right mouse click on color-swatch reverts current color.
Meter Scale selects current scale arrangement.

4.5.4.2 Peak/TP Meter Settings

Adjusts min/max levels of meter display. In addition over level and color split levels are set.
Left mouse click on color swatch opens color dialog.
Alt mouse click on color swatch opens edit field with Web Color code.
Shift right mouse click on color-swatch inverts current color.
Meter Scale selects current scale arrangement.

4.5.5 GUI2 Configuration Page

4.5.5.1 Readout Value/Background1/Label/Background2/Frame

Click on the color swatch to adjust color of individual readout element.
Left mouse click on color swatch opens color dialog.
Right mouse click on color swatch opens edit field with Web Color code.
Shift right mouse click on color-swatch inverts color.

4.5.5.2 Load/Save

Load or save custom sets of interface colors

4.5.5.3 Default

Restores default color set.

4.5.6 Misc Configuration Page

4.5.6.1 CSV/Log Export Settings

Controls the decimal format (dot or comma), value separator (comma or semicolon) and auto export (csv data and reports are automatically written just before host start playing (data from last run is used)

Auto export: exports measurement log on every start.

IL/SL/ML/…: enable to write data to csv file.

4.6 Loudness Measurement Standards

4.6.1 Terms

4.6.1.1 Integrated Loudness (IL)

Integrated Loudness also referred as program Loudness aims at describing the average program material loudness. Some standards integrate of the gated momentary value.

4.6.1.2 Short Term Loudness (SL)

Some standards use a sliding rectangular time window of length 3s. The measurement is not gated.

4.6.1.3 Momentary Loudness (ML)

Some standards use a sliding rectangular time window of length 0.4s. The measurement is not gated.

4.6.1.4 True Peak

Actual level of TruePeak signal, measurement according ITU-R BS.1770-4

4.6.1.5 Loudness Range (LRA)

Measurement of loudness range according EBU R128 Tech 3341

4.6.1.6 Peak to Loudness Ratio (PLR, PSR)

PLR is defined as Max Peak minus integrated loudness, also sometimes referred to as the CREST factor (https://en.wikipedia.org/wiki/Crest_factor).
PSR is defined as Max Peak minus short term loudness (Max Peak within short term time frame).
If dpMeterXT is in True Peak mode, Max TP is used instead of Max Peak.

4.6.1.7 Dialog (DIAL)

Signal is gated Dolby Dialog Intelligence (Dolby Labs). If "Dialog" is selected as loudness gating dpMeterXT displays mainly Integrated Loudness (DIAL), LRA (DIAL), dialog percentage and dialog presence (graphs, report and csv export).

4.6.2 References

Broadcast Audio/Music Production Standards/Recommendations:

- EBU R128 (Europe TV)
- ATSC A/85 (US TV)
- TASA (Movie)
- ITU BS.1770 (Europe)
- AGCOM 219 (Italy)
- ARIB TR-B32 (Japan)
- OP-59 (Australia)
- NBC
- K-Meter
- PodCast
- YouTube

- iTunes
- Spotify
- Tidal
- Replay Gain
- Pandora
- Netflix
- AES Streaming

4.6.3 Presets

4.6.3.1 Factory Presets

Preset name	Unit	Reference Level (dbFS)	Weighting Filter	Target Loudness Level (dbFS)	Max. TP Level (dbFS)	Comment
EBU R128 LUFS +27	LU	0	Leq(K)	-23	-1.0	Europe TV
EBU R128 LU +27	LU	-23	Leq(K)	-23	-1.0	Europe TV
EBU R128 LUFS +18	LU	0	Leq(K)	-23	-1.0	Europe TV
EBU R128 LU +18	LU	-23	Leq(K)	-23	-1.0	Europe TV
EBU R128 LUFS +9	LU	0	Leq(K)	-23	-1.0	Europe TV
EBU R128 LU +9	LU	-23	Leq(K)	-23	-1.0	Europe TV
ATSC A/85 LKFS	LK	0	Leq(K)	-24	-2.0	US TV
ATSC A/85 LK	LK	-24	Leq(K)	-24	-2.0	US TV
AGCOM 219/9/CSP LUFS	LU	0	Leq(K)	-24	-2.0	Italy
AGCOM 219/9/CSP LU	LU	-24	Leq(K)	-24	-2.0	Italy
TASA Leq(m) 85dB	dB	-108	Leq(M)	-23	-2.0	Movie
TASA Leq(m) 82dB	dB	-108	Leq(M)	-23	-2.0	Movie
ITU-R BS1864 LK	LK	-24	Leq(K)	-24	-2.0	ITU
ITU-R BS1770 LKFS	LK	0	Leq(K)	-24	-2.0	ITU
ITU-R BS1770-2 LKFS	LK	0	Leq(K)	-24	-2.0	ITU
ITU-R BS1770-3 LKFS	LK	0	Leq(K)	-24	-2.0	ITU
ARIB TR-B32 LKFS	LK	0	Leq(K)	-24	-1.0	Japan
ARIB TR-B32 LK	LK	-24	Leq(K)	-24	-1.0	Japan
OP-59 LKFS	LK	0	Leq(K)	-24	-2.0	Australia
OP-59 LK	LK	-24	Leq(K)	-24	-2.0	Australia
NBC 30s (SL)	LU	0	Leq(K)	-23	-1.0	NBC
K-12 (dBFS)	dB	0	-	-12	0.0	Generic
K-12 (dB)	dB	-12	-	-12	0.0	Generic
K-14 (dBFS)	dB	0	-	-14	0.0	Generic
K-14 (dB)	dB	-14	-	-14	0.0	Generic
K-20 (dBFS)	dB	0	-	-20	0.0	Generic
K-20 (dB)	dB	-20	-	-20	0.0	Generic
K-Meter Mastering	dB	0	-	-12	-0.2	Generic
Console Game	LU	0	-	-23	-1.0	Generic
Handheld Game	LU	0	-	-18	-1.0	Generic
Podcast	LU	0	Leq(K)	-18	-1.0	Generic
YouTube	LK	0	Leq(K)	-13	-1.0	Google
iTunes	LK	0	Leq(K)	-16	-1.0	Apple
Spotify	LK	0	Leq(K)	-14	-1.0	Spotify
Tidal	LK	0	Leq(K)	-14	-1.0	Tidal
Replay Gain	LK	0	Leq(K)	-14	-1.0	Generic
Pandora	LK	0	Leq(K)	-16	-1.0	Pandora
Netflix 2017 LKFS	LK	0	Leq(K)	-24	-2.0	Netflix
Netflix 2017 LK	LK	-20	Leq(K)	-24	-2.0	Netflix
Netflix 2019 LKFS	LK	0	Leq(K)	-27	-2.3	Dialog Gated
Netflix 2019 LK	LK	-27	Leq(K)	-27	-2.3	Dialog Gated
AES Streaming	LK	0	Leq(K)	-16	-1.0	AES
ACX audiobook	dB	0	-	-18	-3	ACX
Dialog LKFS 3s	LK	0	Leq(K)	-24	-2.3	Dialog Gated
Dialog LK 3s	LK	-24	Leq(K)	-24	-2.3	Dialog Gated
Dialog LKFS 10s	LK	0	Leq(K)	-24	-2.3	LM100
Dialog LK 10s	LK	-24	Leq(K)	-24	-2.3	LM100

4.6.3.2 User Presets

dpMeterXT can store any parameter configuration as preset to disk (see Save Presets). Presets are mainly stored under “%localappdata%/dpMeterXT3” (for Windows) and “/Users/xxx/Library/Application Support/dpMeterXT3” (for Mac OSX).

4.6.3.3 Info menu

Opens plugin info menu. It provides more information about the plugin, opens the online manual and online change-log.

5 Demo mode versus Registered Mode

In demo mode (without activation) the plug-in mutes audio every 90 seconds for a short period. This could be circumvented by clicking on the "TBProAudio" logo within 90 seconds.

6 Plugin activation

The plugins needs to be registered/activated to remove demo restrictions. Please go to

www.tb-proaudio.de to purchase the activation key. After purchase you will receive an email from TBProAudio with either the (zipped) activation key file or the activation key in text form. Go to the plugin menu->Activate plugin. Please follow the steps described here: https://www.tbproaudio.de/support/productactivation. After successful activation the key symbol shown in the GUI appears in golden colour.

7 Conclusion

So finally if you have any questions, suggestions or issues just let us know.
Visit us here: www.tbproaudio.de.

Your team from TBProAudio