

# dpMeterXT

## Manual



TBProAudio 2018

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# 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 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
- predictive loudness/peak graph
- True Peak measurement based on ITU BS1770-4
- K/A/B/C/M/user-defined weighting filter
- continuous/synced measurement
- record metering results as automation data
- large and accurate live meters
- loudness history graph
- reports and CSV data export
- scalable GUI
- customizable GUI colors
- adjustable pre-gain
- loudness/peak/True Peak matching

## 3 Minimum System Requirements

- Windows XP SP3 or newer
- Mac OS X 10.5 or newer
- Win: 32/64 Bit App, 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AAX, 32 Bit RTAS
- OS X: 32/64 Bit App, 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AU, 32/64 Bit AAX, 32 Bit RTAS
- Tested with: Steinberg Cubase/Nuendo/Wavelab 6/7/8, PT10/12, Logic Pro, Cockos Reaper, FL Studio 12.x
- All sample rates

## 4 Interface

### 4.1 General Layout

The interface of dpMeterXT is divided into 3 areas:

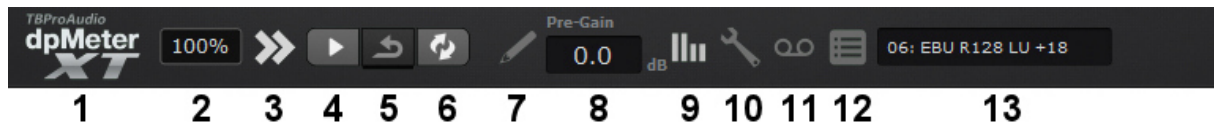


The top panel provides functions to adjust the interface, create reports and to manage presets

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

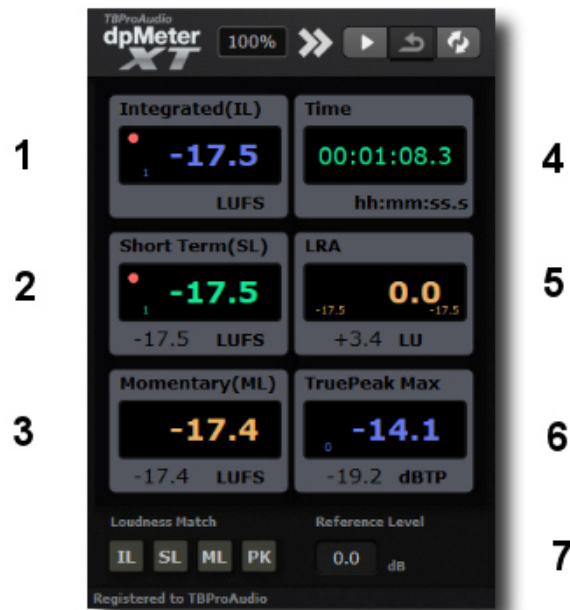
The right panel shows either the meters or the loudness graph

## 4.2 Top Panel



- 1) Logo: shift mouse click stores current configuration as default/startup configuration
- 2) GUI Scale: scales interface from 50% to 300%
- 3) Show/Hide Meter/Graph Panel: reduces the interface to just the numerical readout panel
- 4) Play: if sync is off, it starts/stops the metering
- 5) Reset: resets measurement
- 6) Sync: measurement is reset before host starts playing (not available for standalone application)
- 7) Write Automation Data: enables export of automation data, please refer to your host manual how to setup automation data recording
- 8) Pre-Gain: adds gain before measurement, can be set automatically with loudness match buttons
- 9) Meter/Graph Panel: switches between meter and graph panel
- 10) Settings: opens/closes settings window
- 11) Export History Data: exports loudness data as csv file, details of csv format are configured under Settings->Misc
- 12) Save Report: saves measurement report as txt file
- 13) 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, small led in the top-left corner indicates if value is in range, small number below counts over's, measurement parameters are adjusted under Settings->LM1->Integrated Loudness

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 over's, value below displays max value, measurement parameters are adjusted under Settings->LM1->Short Term Loudness

3) Momentary (ML): displays momentary loudness, value below shows max value, measurement parameters are adjusted under Settings->LM1->Momentary Loudness

4) Time: displays either elapsed, time code or system time, Settings->LM2->Timer

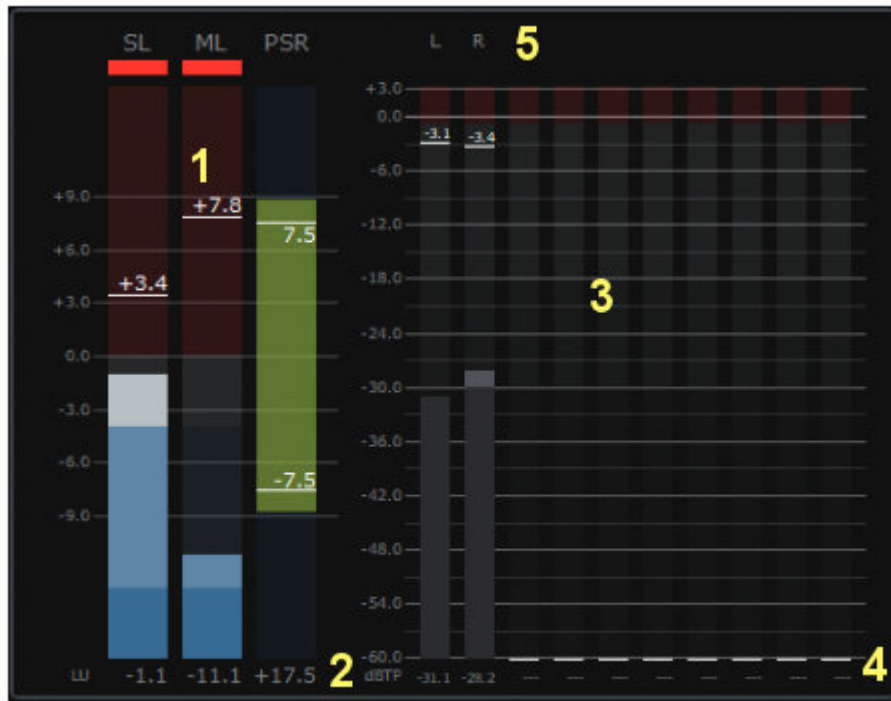
5) Dynamics Display: shows current loudness range (LRA/PLR/PSR) value, small numbers left and right show min and max values of LRA algorithm, value below shows PSR or LRA. This display can be changed on page settings-> LM2.

6) TruePeak/Peak: displays TruePeak max value, small number below counts over's, value below shows Peak value, Settings->LM2->Peak

7) Loudness Match IL/SL/ML/PK/Reference Level: By clicking on one of the buttons the current value will be matched with the given Reference level.

Example: "TruePeak Max" shows -6 dBTP, reference level shows -1 dBFS. If you click on the button "PK", the pre-gain value is automatically set to (+)5 dB. Now "TruePeak Max" should show -1 dBTP. This is very handy if you want to set the loudness/peak/TP to a certain reference level with just a mouse click.

## 4.4 Meter Panel



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

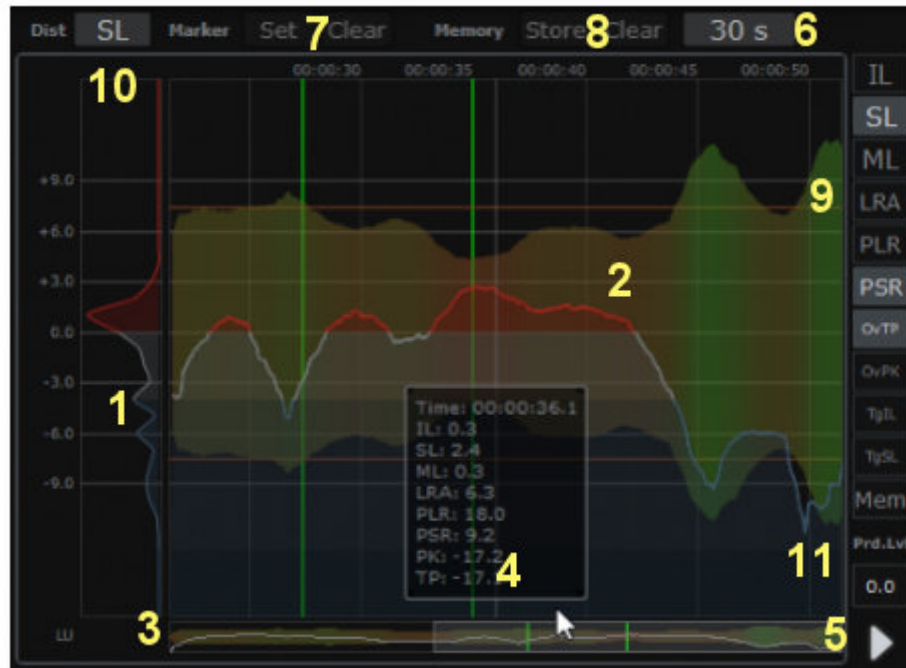
2) SL/ML/LRA/PLR/PSR: current values

3) TP/Peak meter: current values

4) TP/Peak values: max values

5) Channel names: according current routing configuration

## 4.5 Loudness Graph Panel



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

2) Loudness Graph: display IL/SL/ML graphs including LRA/PLR/PSR 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 TruePeak/Peak over's, show/hide IL/SL target level, show/hides memory of SL/ML,

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

11) Level for Loudness Prediction: sets prediction gain (in dB) for all curves of the graph. All curve-values (IL/SL/ML/Peak) are offset with the prediction level. For the PLR/PSR graph only the SL value is offset.

If prediction level is set to 0.0 dB the original curves are displayed.

Density map, overview and info box are updated as well.

#### **4.5.1 Mouse operations:**

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

Mouse click and drag left/right: 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

## 4.6 Settings

### 4.6.1 General

#### 4.6.1.1 Channel Settings

Channel-Configuration: selects number of channels used for measurement, dpMeterXT support 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

Channel-Calculation Mode: determine how multiple audio signals are calculated to a single RMS value, SUM (all RMS values are summed), AVG (all RMS values are averaged), AVG+3 (all RMS values are averaged and increased by 3dB),

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

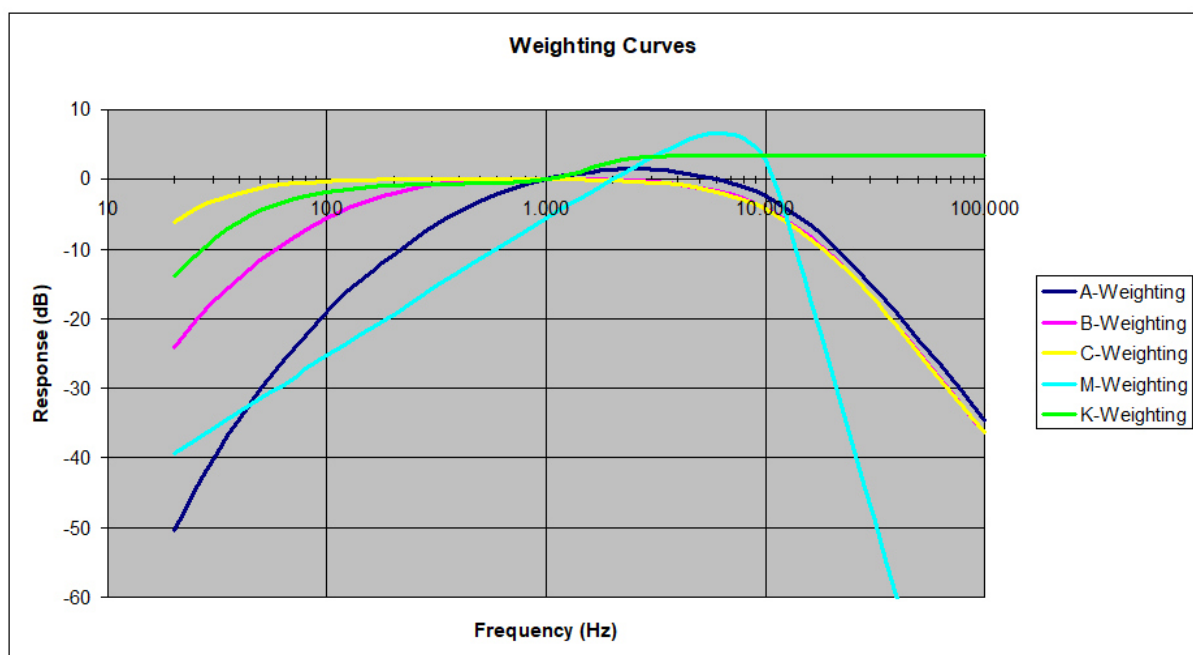
Reference Level: sets reference level for current measurement, if 0 all values are display as dBFS/LUFS/LKFS

#### 4.6.1.2 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

## **4.6.2 LM1 Configuration Page**

### **4.6.2.1 Integrated Loudness**

Absolute Gate: adjusts absolute gate level according IL measurement standards

Relative Gate: adjusts relative gate level according IL measurement standards

Target/Min/Max Level: controls LED in IL readout box and over detection

### **4.6.2.2 Short Term Loudness**

WindowSize: adjusts integration time

Target/Min/Max Level: controls LED in IL readout box and over detection

### **4.6.2.3 Momentary Loudness**

WindowSize: adjusts integration time

## **4.6.3 LM2 Configuration Page**

### **4.6.3.1 Loudness range**

Dyn. Disp: selects either LRA (EBU R128), PLR or PSR for the readout

PxR Target Level: set PLR/PSR target for the graph

### **4.6.3.2 Peak**

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

Max Peak Level: controls over detection

### **4.6.3.3 Timer**

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

## **4.6.4 GUI1 Configuration Page**

### **4.6.4.1 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.

Right 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.

### **4.6.4.2 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.  
Right 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.

## **4.6.5 GUI2 Configuration Page**

### **4.6.5.1 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.

### **4.6.5.2 Load/Save**

Load or save custom sets of interface colors

### **4.6.5.3 Default**

Restores default color set.

## **4.6.6 Misc Configuration Page**

### **4.6.6.1 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).

IL/SL/ML/...: respective data are written to csv file.

### **4.6.6.2 Output Protection**

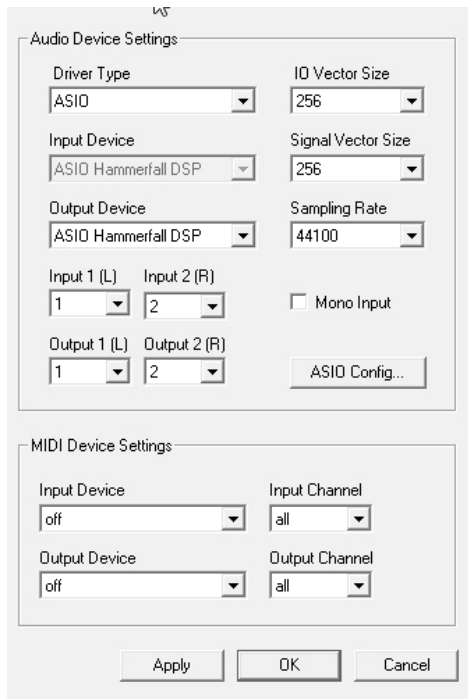
Clip mode prevents signal from going over clip level

### **4.6.6.3 License**

If dpMeterXT is unregistered, just click here and select dpMeterXT license key file. Host needs to be restarted.

## 4.7 Standalone Application

Standalone application offers the same functionality as the plug-in version (except SYNC). Menu File->Preferences is used to adjust audio device settings. Please to note that the number of channels available for measurement depends on your sound device. ASIO/CoreAudio is always preferred. Please refer to the manual of your soundcard manufacturer.



Driver Type: selects the audio driver type (e.g. ASIO, Direct Sound, WDM, CoreAudio)

Input/Output Device: selects the specific driver device

Input 1(L)/Input 2 (R): selects the first two audio input channels, usually 1 and 2

Output 1(L)/Output 2 (R): selects the first two audio output channels, usually 1 and 2

MIDI: currently not used

## **4.8 Loudness Measurement Standards**

### **4.8.1 Terms**

#### **4.8.1.1 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.

#### **4.8.1.2 Short Term Loudness (SL)**

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

#### **4.8.1.3 Momentary Loudness (ML)**

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

#### **4.8.1.4 True Peak**

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

#### **4.8.1.5 Loudness Range (LRA)**

Measurement of loudness range according EBU R128 Tech 3341

#### **4.8.1.6 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](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.

### **4.8.2 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

## 4.8.3 Presets

### 4.8.3.1 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 LKFS	LK	0	Leq(K)	-24	-2.0	Netflix
Netflix LK	LK	-20	Leq(K)	-24	-2.0	Netflix
AES Streaming	LK	0	Leq(K)	-16	-1.0	AES

### **4.8.3.2 User Presets**

dpMeterXT can store any parameter configuration as preset (FXP) to disk (see Save Presets). FXP files stored under (%localappdata%/dpMeterXT for Windows and /Users/xxx/Library/Application Support/dpMeterXT for Mac OSX) are loaded as user presets after reloading the plug-in or restarting the application.

## **5 Demo mode versus Registered mode**

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

## **6 Installation of license key**

After purchasing the license key, unpack the key to a convenient place on your PC (e.g. desktop). Start the plug-in or standalone application, open the settings panel and navigate to the page "misc". Just click on the "License Key" button. A file selector box opens. Navigate to the place where you unzipped the key file, select it and open it.

Now close all plug-in instances or the standalone application.

Now start the plug-in or standalone application again. The GUI should show in the left bottom corner "Registered to your name".

## **7 Conclusion**

So finally if you have any questions, suggestions or issues just let us know.

Visit us here: <http://www.tb-software.com/TBProAudio/index.html>

Your team from TBProAudio