



fMeter Offline

Offline Loudness Analyser
Application

Product Manual

Build 1.0

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What fBox Is

fBox is a complete analogue mixing ecosystem - individual plugins, a universal rack processor, and a full 32-channel mixing console with built-in tape machine - built around a single idea: every piece of hardware that ever left a factory floor had its own personality, and your plugins should too.

Most plugin companies model hardware. They pick one unit, capture it as accurately as they can, and sell that one model to everyone. Your copy is identical to mine. The compressor on your kick is the same compressor on your vocal. It has always worked this way - and it is the reason in-the-box mixes sound in the box.

fBox is built on the opposite principle. Every plugin instance carries a unique serial-seeded analogue character, generated the moment it is created. Load three fComps in one session and you have three different compressors, each with its own voice. That serial is fixed to the instance forever - it never resets, and it travels with the session.

The choice is yours. Open a fresh instance whenever you like and it is a different unit with its own voice - or find one you love and keep it. Save it, recall it, and mix through it for as long as you like: the same character, every time. Learn how it sounds and it becomes an instrument you know. And a unit you keep is yours alone - its serial exists on no one else's machine, the same way a piece of hardware you buy is one specific unit and no other. Bought once, owned permanently, no subscription.

This is not emulation. This is character at the instance level.

Note: *fMeter Offline does not work this way, and deliberately so. It measures rather than processes, and a measuring instrument that varied from copy to copy would be broken rather than characterful. See About The Serial Number.*

What fMeter Offline Is

fMeter Offline is a metering instrument. It runs on its own on Windows, not inside a DAW, and it measures files rather than a live signal. It has three pages, and you choose between them with the selector in the header.

Page	What it shows
Files	A list of everything you have loaded, one row each with its figures.
Loudness	A chart drawing loudness across the file, with the figures underneath.
Levels	Peak lanes, the phase strip, and the shape of the whole file.

It is the same measurement engine as the fMeter plugin, so a file measured here and the same file played through the plugin give the same numbers.

Important: *fMeter Offline is free, and always will be. There is no licence, no key, no trial period and no machine limit. It does not stop working and it does not expire. Install it on as many machines as you like.*

Note: *Your download also contains **fMeter**, the plugin, and always will. It is free on the same terms. fMeter is a VST3 that runs inside your DAW on Windows, with a pair of VU needles, a PPM pair, live bars, a phase scope and a live loudness chart. Where this application measures a file that already exists, the plugin shows you what is happening while you work. It runs the same measurement engine, so the numbers agree. It has its own manual.*

It never plays anything

There is no audio output. It reads the file, measures it, and shows you the result. The play button walks a marker through a measurement that has already been made - it makes no sound.

That is why it can measure an hour-long file in a few seconds instead of an hour. Nothing has to happen in real time, because nothing is being listened to.

What it is for

A meter inside a DAW can only measure what is going past it while something is playing. This measures a file that already exists, all of it, without playing it.

So it answers the questions you ask about something once it is finished. How loud is it. Is anything in it going to distort. Does it still work when the two stereo channels are added together into one. Do these twelve files match each other.

That last one is the one worth dwelling on. A plugin can tell you about the thing currently playing. This can put a whole album on screen at once, one row per track.

Getting Started

Working in two minutes

1. Press LOAD and pick a file. Any finished file - a mixdown, a master, or anything else you want to measure.
2. It is measured and a row appears. INTEGRATED is how loud it is; TRUE PEAK is whether it will distort.
3. Set TARGET to the figure you were asked for. Anything more than 1 LU away from it turns red, and so does a true peak above your threshold.

That is all you need to start. Everything below explains each page and every control on it.

Tip: You can drop a whole folder of files in at once and get a row each. Comparing them against each other is the thing this does that a plugin cannot.

New to metering?

The short version: a meter is not one thing. Different meters answer different questions, and the reason there are three pages here is that no single display answers all of them.

Two questions matter most once something is finished. **How loud is it?** is answered by the loudness figures, which is what a streaming service or a broadcaster will look at. **Is it going to distort?** is answered by the peak figures, which is what decides whether a file plays cleanly on somebody else's system.

They are not the same question and they do not have the same answer. A file can be quiet and still distort, or loud and perfectly clean. Everything in this application exists to separate those two things and give you a number for each.

Which Page For What

The three pages answer different questions, and it is worth knowing which is which before you go looking.

Page	The question it answers
Files	How do these files measure? The list, one row each, with its figures.
Loudness	How loud is this one, and where in it? The chart over time and the five readings.
Levels	Is it going to distort, and will it survive being played in mono? Peaks, phase, and the shape of the whole file.

Double-click a row on the Files page to open that file on the Loudness page.

Interface

One window, with the page selector and Help at the top right.

The header

The name plate is in the middle. To its right are the page selector and Help, which opens the built-in manual. Top left is the build and the serial number of this copy - see About The Serial Number at the end.

The size menu

The small triangle in the bottom-right corner opens a size menu with Small, Medium and Large.

Small is for a laptop screen, and everything on it stays readable at that size. Large is for a big monitor, or for reading the figures from further back.

If your screen cannot hold the size you have picked, fMeter quietly uses the largest that will fit rather than running off the edge.

Files

The list. Everything you have loaded, one row each.

LOAD

Opens a file dialog. Pick one file or a hundred - hold Ctrl or Shift to choose several. They are measured one after another and each row appears as its file finishes.

WAV, AIFF, FLAC, Ogg, MP3 and Windows Media are all read.

A file that cannot be read still takes a row, in red, saying so. It is not dropped quietly, because a list that silently loses a file is worse than one that admits it.

REMOVE

Takes the rows you have selected out of the list. Select several with Ctrl or Shift. The Delete and Backspace keys do the same thing.

CLEAR ALL

Empties the list.

Selecting and deselecting

Click a row to select it. Click the same row again to deselect it and go back to nothing selected.

That matters because REPORT covers the rows you have selected, and covers everything when nothing is selected.

The columns

File, its length, its sample rate, and whether it is mono or stereo, then the figures.

Column	What it is
Integrated	How loud the whole file is, in LUFS.
Range	How much the loudness moves across it, in LU.
True Peak	The highest true peak, in dBTP.
MAX	The highest sample peak, in dBFS.
Overs	How many times true peak went above your threshold.

Every one of those is explained in the pages below.

A figure more than 1 LU from your target turns red, and so does a true peak above your threshold. That is the whole delivery check, at a glance, down a column.

Tip: Load an album in track order and read the Integrated column top to bottom. Tracks that jump out by more than a decibel or so are the ones that will feel wrong on a playlist, and you will spot them faster down a column than you ever would by ear across an afternoon.

Target And True Peak Threshold

Two settings, and they run through the whole application. They are remembered between sessions.

They can be set from the boxes at the bottom of the Files page, or from the knobs on the Loudness and Levels pages. All of them are the same two numbers - change one and the rest follow.

TARGET

Default: -14 LUFS. The loudness you are aiming for.

Any number is accepted. It is whatever you have been asked to hit, not a setting with a right answer. Type nonsense and it returns to -14 .

It decides which INTEGRATED figures turn red, and it draws the dashed red line on the loudness chart.

Note: *Platforms publish their own figures and change them from time to time. -14 LUFS is a common streaming figure and the default here; broadcast work in Europe is specified at -23 LUFS with a -1.0 dBTP ceiling. If you have been given a number to hit, type that one rather than trusting any default, including this one.*

TRUE PEAK THRESHOLD

Range: -6.0 to 0.0 dBTP. **Default:** -0.3 dBTP.

The level above which a true peak is shown in red and counted as an over. Nothing is limited or altered by it - it only decides what turns red.

-0.3 is a sensible default and the figure most limiters ship with. -0.1 is very common in music. Broadcast work usually asks for -1.0 . Set it to whatever you are working to.

Tip: *You do not have to decide either of these before you load anything. Change one at any point and the whole list recolours on the spot, so if the figure you are aiming for changes halfway through, retype it and read the same list again.*

Loudness

How loud the whole thing is.

What loudness is, and why it is not peak

Peak tells you nothing about how loud something sounds. A single sharp click can peak at 0 dBFS and be almost inaudible. A thick bass note can sound enormous and peak much lower.

Loudness is measured by taking the whole signal, filtering it to match the way the ear responds - we hear the middle of the range far better than the extremes - and averaging the energy over time.

The result is written LUFS. It is on the same scale as dBFS, so it is also negative, and 1 LUFS is 1 dB. If a mix reads -14 LUFS and you turn it up 3 dB, it reads -11 LUFS. That is the whole arithmetic.

LU is the same size as LUFS but used for a difference rather than a level. "3 LU quieter" is a comparison; "-14 LUFS" is a measurement. The RANGE reading is in LU because it describes a spread.

It matters because streaming services turn every track up or down to roughly the same loudness before anyone hears it. Louder than their figure and it gets turned down; quieter and it gets turned up.

In practice that is far less dramatic than it is often made to sound. Being turned down is not a punishment and it does not harm the audio - your track simply plays at the level the platform picked, alongside everything else at that same level. Plenty of commercial releases measure a long way above the -14 LUFS figure that gets quoted, often nearer -9, and louder still in some dance and pop. The engineers who made them know precisely what the number is and deliver louder anyway, because they are after the sound that comes from pushing a master hard, not the playback level.

So treat a target as a tool rather than a rule. If somebody has handed you a figure you have to hit, this page is how you hit it exactly. If nobody has, this page tells you where your file sits so you can compare it against records you already trust.

Tip: *The most useful thing you can do with this application early on has nothing to do with your own music. Load half a dozen records you know inside out and read the figures. Ten minutes of that will tell you more about where your own masters should sit than any published target, because you will be comparing against things you already know the sound of.*

The chart

Loudness drawn over time on ruled paper. Unlike a plugin, which can only ever show you what has already gone past, this is the whole file from the first sample to the last, and you can scroll and zoom anywhere in it.

The blue trace with the filled body underneath it is the short-term reading. The thinner pale line, if you turn it on, is momentary. The red dashed line is your TARGET. The dark blue line is the INTEGRATED reading. The green band is the RANGE. Red marks along the top edge are the moments true peak went above your threshold.

The time axis is the position in the file, so 1:30 means a minute and a half into the song.

The five readouts are also the buttons

Click a readout and its line appears on the chart. The strip inside the box lights up and its border takes the same colour, so the row of readouts is also the key to the chart.

INTEGRATED

This is the number. When anyone asks how loud a file is, this is the figure they mean. It is the one every delivery specification is written in, the one a streaming service or a broadcaster quotes, and the one to write down when you are comparing two pieces of music. If you read one thing off this page, read this.

The loudness of the whole file in one number. Draws as a horizontal rule.

It is not simply the average of the other two. Quiet passages are deliberately left out, so a track with a long silent intro is not reported as quieter than it sounds. That is why it can sit noticeably above the short-term reading during a quiet section.

MOMENTARY

The last fraction of a second. It jumps about with the music. Use it to see what a particular moment is doing. Draws as a thin pale trace.

SHORT-TERM

The last few seconds. Steadier - it follows sections without twitching at every snare. Draws as the main trace with the filled body.

Momentary and short-term are the same measurement over different lengths of time, so one of them is always drawing the trace. Turning off the last one is refused - the click does nothing and the box stays lit.

Tip: *Short-term is the one that shows you arrangement problems. A chorus that reads the same as the verse before it will not feel like a lift, however much was added to it.*

RANGE

How much the loudness moves across the whole piece, in LU - the difference between its quiet parts and its loud parts. Draws as a shaded band between the two, which is what the figure measures.

A heavily compressed mix might read 3 LU. A dynamic acoustic recording might read 12. Film and classical go higher still. There is no correct value; it is a description, not a target.

It shows a dash on anything under a minute. Below that there is not enough material to describe a spread.

Tip: *A good way to compare your mix against a recording you like. Load both and see how far apart the two figures are. If the record you are chasing reads 8 and yours reads 3, that gap is the thing you are hearing and could not name.*

TRUE PEAK

The highest true peak in the file - the same measurement the Levels page shows, kept here so both figures are on one screen. Draws as red marks along the top edge. It turns red above your threshold.

TARGET

−30 to −6 LUFS on the knob, and any number if you type it into the box underneath.

The red dashed line on the chart. Set it to whatever you are aiming for and you can see at a glance how far off the integrated reading is.

Drag the knob to change it, double-click to return to −14, or click the box and type.

Zoom and scroll

The plus and minus buttons above the right-hand end of the scrollbar zoom in and out, and the bar underneath shows how much of the file is on screen.

Drag the bar, or drag the chart itself, to move through the file. Shift and the mouse wheel over the chart zoom as well.

At full zoom out the whole file is on screen and the minus button dims - there is nothing further out to go.

The play button

It walks a marker through the file and the readings follow it, so you can watch the measurement arrive and see where in the track something happened rather than only that it did.

Nothing is played. The speed selector runs it at one, four or sixteen times.

Stop returns to the beginning. The rewind button goes back to the beginning without stopping.

Click anywhere on the chart to move the marker there. If it was running it carries on from the new place; if it was not, you are simply looking at that moment.

Stopped, every reading is the file's own figure. Running, they are the figures up to the marker.

Tip: Sixteen times is the speed for finding something: run the file through and watch for the reading you did not expect. To go back and study that moment, stop first and then click the chart, because clicking while it is running only moves the marker and it carries straight on from the new place.

Levels

The numbers page. Everything here answers "is this going to distort", and "will it survive being played in mono".

Why you would come to this page

The Loudness page tells you how loud a file is. This one tells you whether it is safe.

Those are separate questions with separate answers, and the second one is the one that embarrasses you in public. A file can measure perfectly against its target and still crackle on somebody's phone. Nothing on the loudness page would warn you, because loudness is an average and the problem is a handful of individual moments.

Two things go wrong, and neither is audible while you work. The file can be pushed past the ceiling, which flattens the tops off the waveform and sounds like a crackle or a hard edge on the loudest moments. Or the file can look perfectly safe and still distort later, once somebody plays it through a phone or a streaming service converts it. Sample peak catches the first. True peak catches the second.

dBFS - the scale the peak lanes use

Digital audio has a hard ceiling. There is a maximum value a file can hold, and that maximum is called 0 dBFS - "full scale". Everything quieter than it is a negative number, so digital levels are almost always negative: -6 dBFS is half of maximum, -20 dBFS is a comfortable working level, -60 dBFS is very quiet.

Nothing can go above 0 dBFS inside a file. There is no room there. A signal that tries is flattened off, which sounds like distortion and cannot be undone afterwards.

Sample peak

Your computer stores sound as a long list of measurements, taken tens of thousands of times a second. Sample peak is simply the biggest measurement in the list.

If sample peak reads below 0 dBFS, nothing in the file has been flattened off.

True peak

A file is a list of numbers. Sound is a continuous wave. Something has to get from one to the other, and that something is your speakers, your headphones, or the encoder that turns your track into an MP3 or a stream.

That conversion draws a smooth curve through the numbers, the way you would draw a smooth line through dots plotted on a graph. A curve drawn through dots can bulge higher than the highest dot it passes through. So the sound coming out of the speaker can be louder than anything actually written in the file.

True peak is how high that curve really gets. It is written dBTP, and it is always equal to the sample peak or above it, usually by a few tenths of a decibel and occasionally by

more than a whole one on a loud, heavily limited master.

Here is why you should care, in the order it will happen to you. You bounce a master. Every number in it sits below the ceiling, so it looks clean, and it sounds clean on your system. You upload it. The service converts it to its own format, those bulges land above the ceiling, and the converter has nowhere to put them, so it squares them off. Somebody listening on their phone hears a thin crackle or a brittle, spitty edge on the loudest moments of a track that was perfect when it left you. You will never hear it at home, because your file was never the problem.

That is the whole reason this measurement exists, and it is why delivery specifications are written in true peak rather than sample peak. Leaving a little room below the ceiling gives the converter somewhere to put the bulge.

Sample peak tells you about the file. True peak tells you about the sound that comes out of it.

The two lanes

One for each channel, marked L and R, drawn on ruled paper with the same time axis as the loudness chart. The blue shape hanging down from the top is the sample peak over time.

The red line across each lane is your true peak threshold, with its figure at the right-hand end. Drag the knob at the bottom of the page and both lines move.

The red vertical marks are the moments true peak went above that line. They are placed where they happened, so you can see whether the problem is one stray transient or the whole last chorus.

Scrolling and zooming here and on the Loudness page are the same thing - move one and the other follows, because they are two pictures of one measurement.

Tip: *The position of those red marks decides what you do about them. A single mark on one drum hit is a fix you can make in seconds. A solid band of them across the last chorus means the master is too hot and no amount of editing individual moments will help.*

The five readouts

PEAK L and PEAK R are the highest sample peak each side reached. TRUE PEAK L and TRUE PEAK R are the true peaks, and turn red above your threshold. IN MONO has a section of its own below.

Under them, the count of true peak overs for the whole file.

IN MONO

The fifth readout, bottom right. It answers one question: how much of this mix disappears when the two channels are added together?

To find out, the whole file is summed to mono, its loudness measured, and that compared against the loudness of the stereo original. The difference is what gets lost, shown in LU.

A word sits with the figure:

Reading	What it means
HOLDS UP	Nothing meaningful cancels.
THINS OUT	Something wide is fighting itself. Worth listening to in mono.
COLLAPSES	A real problem. Something is inverted. Shown in red.

Some loss is normal and is not a fault. Sounds spread across two channels get quieter when those channels are added into one, so a genuinely wide mix always drops a little. Under about 1.5 LU is nothing to worry about.

This matters because of who is listening. Anyone on a phone speaker, a club system or the radio is hearing the two channels added together, and whatever cancels is simply not there for them. This reading is how much of your mix those people do not get.

Tip: *If this reads THINS OUT, the correlation strip above it tells you where to look. Find the stretch sitting lowest, play that part of the mix in mono, and you will usually hear straight away which instrument went missing.*

Phase And The Stereo Image

Why this matters

This is the thing engineers mean when they say something is *out of phase*.

A sound wave pushes and pulls. A speaker cone moves out, then in. If two speakers play the same sound and both cones move out at the same instant, the two pushes add up and you hear it louder. If one cone moves out while the other moves in, the push and the pull meet in the air and cancel, and you hear almost nothing.

The same thing happens inside a file whenever the left and right channels carry the same sound with one of them the wrong way up. On its own, a wrong-way-up channel sounds completely normal - your ears cannot tell, and neither can anyone else's. It only shows itself when the two channels get added together.

That happens more often than you would think. Anyone listening on a phone speaker, a club system, or a radio is hearing your mix in mono.

When it happens you do not hear a click or a glitch. You hear an absence. The bass goes hollow and loses its weight. The vocal stops sitting in the middle and seems to come from somewhere behind you. An instrument somebody spent an afternoon on is simply not there any more. And it sounds fine on the monitors it was made on, so nothing warns anybody until it is played somewhere else.

Where it usually comes from

It is rarely something anyone did on purpose. The common causes are worth knowing, because recognising the situation is faster than diagnosing the symptom:

Cause	What is going on
Two microphones on one source	A snare miked above and below, or a guitar cab miked close and far. One mic hears the drum skin coming towards it while the other hears it going away.
A widener or a chorus pushed too far	Most of them work by pulling the two channels apart, and most have a point past which they start cancelling instead.
A cable wired backwards	Or a DI box with its polarity switch flipped and long forgotten.
A sample layered under a live take	Two versions of the same hit that are not lined up with each other.

Important: *Wide is not a problem. Two different instruments panned apart are unrelated to each other, which looks very wide, and they are perfectly fine. Only sustained cancelling is a problem.*

The phase strip

A graph over the length of the file of how alike the two channels are.

High is mono. The line across the middle is where they stop being related at all, which is what wide stereo looks like. Below that they are starting to cancel, and the lower half is tinted to make that obvious. MONO, WIDE and OUT OF PHASE label the scale.

The one to watch is the centre line. Above it, whatever you are doing is fine. Below it, something is fighting itself.

Tip: A doubled vocal - two separate takes of the same line, one panned left and one panned right - will read low on the strip and wander about, and that is correct. The two takes are the same part, but they are not the same performance: the timing and the pitch differ by tiny amounts all the way through, so from moment to moment the two channels rarely match. That mismatch is exactly what makes a double sound wide and thick, so the low reading is the effect working. A single take copied to both sides is a different thing entirely - identical on both channels, and it reads as hard mono. What matters on this strip is time spent below the centre line, not how much the line moves.

Tip: The real test is free. Play the mix in mono and listen. If nothing thins out or disappears, there is nothing to fix. This strip's job is to tell you when that check is worth doing, and roughly where in the track to listen.

The stereo image

The square scope in the middle of the page. A plugin's version of this shows the last fraction of a second; this one draws every moment of the whole track on top of itself, so the brighter a part of it is, the more of the track was spent there.

You read it by shape, and the key beside it says how:

Shape	What it means
A vertical line up the middle	Mono. Both channels are carrying the same thing.
A tall narrow blob	Mostly mono, with some width.
A fat round blob	Wide stereo.
Leaning left or right	More energy that side.
A flat horizontal line	The channels are cancelling. This is the one that matters.

The M at the top marks where a mono signal stands. The L and R mark the corners a hard-panned sound sits in.

Vertical means mono because if both channels carry the same thing they never disagree, so there is no sideways movement. Invert one and it is the opposite - they never agree, so there is no vertical movement, and you get a flat line.

Tip: *A normal mix looks tall with some width rather than round, even one with plenty of stereo in it. The loud things - kick, bass, lead vocal - are usually centred and carry most of the energy, so they dominate the shape. The hard-panned parts are the fainter spread either side.*

Press play and the shape changes: the whole-file picture stays underneath, greatly dimmed, and the moment under the marker is drawn over it in gold. That is how to find which part of the track is making a shape you did not expect.

Reports

Every page can print what it is showing.

Choose a kind from the dropdown and press PRINT OUT, or REPORT on the Files page. A sheet lays over the panel with the panel dimmed behind it. The figures on it are frozen the moment it opens, so what you read is what you send.

The kinds

Page	Kinds
Loudness	Full report, loudness summary, dynamic range, true peak log.
Levels	Full report, peak summary, phase report.
Files	Delivery check, loudness summary, true peak log.

The Files reports cover the rows you have selected, or all of them when nothing is selected. A report over a whole album is the thing this does that the plugin cannot.

Each kind draws only what it is about, so a dynamic range report shows the range and not the rest. All of them carry the short-term trace faintly underneath, because it is the only thing that tells a reader where in the song anything is.

Every report has a key naming each colour on it.

PNG and TEXT

PNG writes a picture of the sheet. TEXT writes the same figures as plain text.

Both go to Documents \ fBox \ fMeter Printouts, and the folder opens so you can find them.

Tip: PNG is the one to send somebody. It is an image, so it pastes straight into an email or a message without anything being needed at the other end.

Tip: Send a delivery check along with the bounce. It answers the obvious questions before anybody has to ask them, and it settles any later disagreement about what you actually sent. Keep the TEXT version in the project folder, because it is searchable.

What fMeter Offline Writes To Your Computer

Two things, and nothing else.

Folder	Contents
AppData/Roaming/ fBoxAudio (Windows)	Your target, your true peak threshold and the folder you last loaded from, and a mark saying the mailing list window has been shown.
Documents/fBox/ fMeter Printouts	Your reports, as images and plain-text files. The folder is made the first time you print one.

Your audio files are opened and read. Nothing is ever written back to them, and nothing is filed away somewhere you did not pick.

There is no licence file, because there is no licence.

About The Serial Number

Every copy of fMeter Offline has a unique serial number, shown in the watermark.

On the products in the range that process sound, that serial means something: it defines the unit's character, the small manufacturing differences that make that instance sound like that instance and no other. Two fVerbs do not sound identical, any more than two real reverbs do.

fMeter does not work that way. Its serial is a nameplate and nothing more. It affects nothing.

Making two units differ is character on something that processes sound, and it would be a fault on something that measures. If one fMeter read -14.2 LUFS on a file and another read -14.4 on the same file, one of them would be wrong, and you would have no way of knowing which.

So every fMeter reads exactly the same as every other fMeter, and as any other correctly built meter. The loudness standards are public documents; a meter that implemented them with a personality would be implementing them incorrectly.

Important: *The serial is on the panel because the panel belongs to a range where every other unit has one. It does not appear on reports, where a serial would imply a calibrated instrument identity this one does not claim.*

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