



fMeter

Metering Instrument

Plugin

Product Manual

Build 1.0

by flakebelly
fboxaudio.com

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 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 Is

fMeter is a metering instrument. It runs as a VST3 plugin inside your DAW on Windows, as everything in the fBox range does. It has four pages - two analogue and two digital - and you choose between them with the two selectors in the header.

Page	What it shows
Analogue / VU	A pair of big VU needles.
Analogue / PPM	The same pair, reading peaks.
Digital / Levels	Bars, true peak, and the phase scope.
Digital / Loudness	A chart drawing loudness over time, with the figures underneath.

fMeter never touches your audio. It reads what passes through and hands it on untouched - not "almost untouched", but the identical samples that arrived. Render a file through it and it is bit for bit the same file. It adds no delay of any kind, so you can leave one on every channel and nothing shifts in time.

Most things you put on a track do something to it, and you accept a small change in exchange. fMeter does nothing to it. There is no wet and dry, no trim, no bypass blend, because there is no processed path for them to act on. Nothing it shows you is a side effect of anything it did.

The thing fMeter is really for is the movement. The figures on the digital pages come from published standards, so they are simply what they are. The needles are where the work went. They rise, hold and fall the way the mechanism they are modelled on does, and that is what lets you read a level out of the corner of your eye instead of stopping to work it out.

Important: *fMeter is free, and always will be. There is no licence, no key, no trial period and no machine limit. It does not stop working, it does not expire, it is not crippled in any way, and it never silences your audio. Install it on as many machines as you like.*

Note: *Your download also contains **fMeter Offline**, and always will. It is free on the same terms. fMeter Offline is an application rather than a plugin - an .exe you run on its own - so it does not go in your DAW, and it never plays anything, having no audio device at all. Where the plugin watches audio going past, fMeter Offline measures finished files: point it at one file or a hundred and it reads them faster than real time, then shows every figure at once, with a sortable list of the whole batch and a report you can save. It runs the same measurement engine as the plugin, so a file measured there and the same file played through this one give the same numbers. It has its own manual.*

Getting Started

Working in two minutes

1. Put fMeter on a track. Any track - a vocal, the drums, the mix bus, whatever you want to look at.
2. Play something. You are on the VU page and the two needles are showing you the left and right levels.
3. Try the second selector. VU and PPM are two different kinds of needle; Levels and Loudness are two screens of numbers. Look at all four with music playing and see which tells you what.

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

Tip: *In your DAW the track fader usually comes after the plugins on that track. So if you move the fader and fMeter's reading does not change, that is why - it is reading what arrives at it, which is before the fader. To meter what the fader is actually sending, put fMeter on the bus the track feeds instead.*

New to metering?

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

Two questions matter most. **How loud does this sound?** is a question about your ear, and it needs a slow meter that ignores brief spikes, because your ear largely ignores them too. That is the VU page. **Am I about to distort?** is a question about the numbers in the file, and it needs a fast meter that catches everything, because a spike too short to hear can still wreck a file. That is the Levels page.

Everything else on fMeter is a refinement of those two. PPM is a faster needle, and it shows you the spikes as they happen. Loudness is the formal, standardised version of "how loud does this sound", and it is the one streaming services and broadcasters use.

The window you see the first time

The first time fMeter runs on a machine it shows a small window offering the fBox mailing list. It has one box and one button.

It is not an activation screen. There is nothing to enter, nothing to unlock, and the close button works. Close it and fMeter carries on exactly as it would have. It appears once per machine and never again, whether you sign up or not.

Which Page For What

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

Page	The question it answers
VU	How loud does this <i>sound</i> ? The classic mixing meter. Slow, steady, and it moves the way your ear does.
PPM	How big did that <i>get</i> ? Fast, so it catches sharp sounds a VU is too slow to see.
Levels	Am I about to distort? The exact numbers, and the phase scope.
Loudness	How loud is the whole thing, measured the way streaming services and broadcasters measure it?

VU and PPM are what you would leave up while you work. Levels and Loudness are what you look at when you want a number.

Tip: *If you are new to all this, live on the VU page for a week. It is the one that teaches you the most, because it moves the way loudness actually behaves rather than the way peaks do.*

Tip: *There is no rule that says one instance. A meter costs almost nothing and adds no delay, so putting one on the mix bus permanently and a second on whatever you are currently working on is a perfectly reasonable way to work.*

Interface

Across the top are the watermark and serial number, the fMeter nameplate, the two selectors, Patch and Help. Everything below is the page you have chosen.

The first selector picks ANALOGUE or DIGITAL. The second picks which of that mode's two pages you are on - VU or PPM under Analogue, Levels or Loudness under Digital. Each mode remembers its own page, so going Analogue, then Digital, then back to Analogue puts you where you left off.

The size menu

The small triangle in the bottom-right corner opens a size menu with Small (75%), Medium (100%) and Large (150%), so you can scale the whole unit to your screen.

Small is there so the unit can sit beside your DAW on a laptop without covering it, and everything on it stays readable. Large is for a big monitor, or for reading the needles from across the room.

If your screen cannot hold the size you have picked, fMeter quietly uses the largest that will fit rather than running off the edge. On a small screen that can be smaller than Small.

Every control has its range and default noted in its section below.

Buttons And Selectors

Across the top

Control	What it does
MODE	Analogue or Digital. The window resizes to match.
PAGE	Which page within that mode - VU or PPM, or Levels or Loudness.
PATCH	Save or load a patch card, which is a copy of all your settings. See Patch Cards.
HELP	Opens the built-in help window.

On the Analogue pages

Control	What it does
VU REFERENCE	A typed value. Click it, type a number, press Enter. Sets which level the needles call zero. See the VU section.

On the Levels page

Control	What it does
RESET PEAKS	Clears everything that is being held: the thin bars sitting across the meters, the arrows on their edges, the OVER lamps and the MAX readout.
TRUE PEAK THRESHOLD	A typed value. The level above which a true peak is shown in red.

On the Loudness page

Control	What it does
RESET	Starts the measurement again from nothing.
TARGET	A knob with its own readout, setting the dashed line on the chart.
PRINT OUT	Produces a printed report of the measurement. The dropdown beside it picks which kind.
+ and -	Zoom the chart in and out.
Arrow	Return the chart to the live edge.

Analogue - VU

Two needles, left and right. There is nothing else on this page.

What a VU is

The oldest meter there is, and still the most useful for balancing. A VU needle is slow: it takes about a third of a second to arrive, so it rolls straight over short sharp sounds and shows roughly what your ear thinks the level is.

That slowness is the point. It will not tell you whether you distorted - it cannot see fast enough - but it will tell you whether the vocal is sitting where it should against the drums, at a glance, without reading anything.

This is the one meter you can use without reading it. Two needles side by side, and you are looking at the gap between them rather than at either number. That is a far faster way to judge a balance than comparing two figures.

The scale

Marked from 20 through to 3, with red starting at 0.

Those numbers are decibels, and a decibel is a comparison rather than an amount - it says how much bigger one thing is than another. Six decibels is roughly double. One decibel is about the smallest change most people notice.

On this page they are decibels relative to the REFERENCE you have set, not to any fixed point. 0 here means "the level I calibrated this to".

The marks bunch up towards the left because a VU scale is even in signal rather than even in decibels. That is why it looks the way it does, and it is why the same two needles look completely different on the PPM page.

VU Reference

Range: -24 to -6 dBFS in 0.5 steps. **Default:** -18 dBFS.

The box below the meters. Click it, type a number, press Enter.

It sets which digital level the needles call zero. On a real VU meter, 0 was a fixed voltage arriving down a wire. There is no voltage inside a plugin, so somebody has to decide which digital level 0 stands for, and this box is where that decision is made.

If you do not already know why you would change this, leave it at -18 dBFS. It is the default, it is the figure most studios work to, and every reading on both analogue pages assumes it. Nothing is missing and nothing is wrong because you left it alone.

Here is what it is for, if you want to know. Digital audio measures downwards from a fixed ceiling, so the loudest possible level is 0 and everything real sits below it as a negative number. Nobody mixes near that ceiling, because peaks need somewhere to go, so a signal at a sensible working level averages out a long way below it. -18 dBFS is the level the industry settled on as that sensible place. Setting the reference to -18

means the needle reads 0 when your signal is sitting exactly there, so the needle is telling you whether you are in the right place rather than how far you are from the ceiling. That is the whole trick, and it is why a VU is comfortable to mix on.

–20 dBFS is the other common figure, used more in film and television. If the studio or the course you are working in already uses a particular level, type it here and the needles will read the way everyone around you expects.

Important: *It moves the NEEDLES only. Every number on the digital pages is absolute and completely unaffected by it. Changing the reference cannot change whether a file clips, and it cannot change a loudness figure - it changes where the needle sits and nothing else.*

It is shared with the PPM page, so setting it once calibrates both.

Tip: *On a single track, aim for the needle to sit around 0 on the loudest sustained parts. Do not worry about it swinging into the red. A VU shows an average rather than a peak, so a needle passing 0 is not distortion and is not a warning - it is the loud bit being loud. It is where the needle sits most of the time that matters, not how far it occasionally goes.*

Tip: *To check the reference is where you think it is, feed a steady 1 kHz tone at exactly that level. Both needles should sit dead on 0. So should the PPM needles.*

Tip: *If the needle barely moves on something that ought to be lively - a drum kit, a bass guitar - the signal has been heavily compressed somewhere. That is not necessarily wrong, but it is worth noticing, especially if you did not do it yourself.*

Analogue - PPM

The same two needles, reading peaks.

What a PPM is

Where VU is slow and shows how loud something seems, PPM is fast and shows how big it got.

It rises almost immediately, catching the short sharp sounds a VU rolls straight over, and then falls back slowly and evenly so you have time to read what it caught. Fast up, slow down, which is what makes a peak readable at all.

That asymmetry is the whole design. A meter that fell as fast as it rose would flick and be unreadable; a meter that rose as slowly as it falls would miss the thing you needed to see. Rising instantly and falling at a fixed, gentle rate gives you both.

The scale

Marked every 2 dB from -16 to $+12$ relative to your reference, numbered every 4, with red above $+8$.

The marks are evenly spaced because this scale is even in decibels - which is why it looks nothing like the VU page even though they are the same two needles.

It uses the same VU Reference setting, so both pages are calibrated together and a tone at your reference level reads zero on either.

Tip: *PPM is the one to watch while recording. It catches what a VU misses, so it will warn you about a sharp sound that is going to cause trouble later, while you can still do something about it.*

Tip: *Switch between VU and PPM on the same material. The gap between the two readings tells you how much sharp, short content there is - a live drum kit shows a big gap, a heavily compressed loop shows almost none. That gap is a useful thing to know about a recording before you start processing it.*

Digital - Levels

The numbers page. Everything here answers "am I about to distort".

Why you would come to this page

VU and PPM are for mixing. This page is for finishing.

When a mix is done and about to become a file that leaves your computer - sent to a mastering engineer, uploaded to a distributor, handed to somebody else - it has to be checked that it is actually safe to play. That is what this page is for, and it is the reason a novice needs to know what a peak is even if they never intend to master anything themselves.

Two things go wrong at that stage, and neither is obvious while you are working. 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. The bars, MAX and the OVER lamps catch the first. True peak catches the second.

If nothing ever leaves your machine, you can ignore this page. The moment something does, it is the page to check before it goes.

dBFS - the scale everything here uses

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.

Tip: *Leave yourself room while you work. Mixing so the loudest moments sit around -6 dBFS costs you nothing, and it is commonly what a mastering engineer will ask you for: a mix that peaks at or below -6 dBFS, leaving them room to work. Headroom is free until you need it, at which point it is impossible to get back.*

The bars

Two vertical bars, left and right, against a ruler down the middle.

The bar is zoned: green up to -6 dBFS, amber from -6 to 0, and red above 0. All three are visible at once, so you can see where the signal is sitting rather than just which zone it is in.

Above each bar is an OVER lamp, which lights when that side reaches 0 dBFS - the top of the scale, where a signal is flattened off. Once it lights it stays lit until you press

RESET PEAKS, so you cannot miss one that happened while you were looking elsewhere.

Sample peak, and the thin bar

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.

The thin bar sitting across each meter is the highest sample peak that side has reached since the last reset. It sticks for three seconds and then falls slowly, so a peak you did not see is still there when you look up. SAMPLE PEAK L and R in the readouts are the same two figures as numbers.

True peak, and the arrow on the edge

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 arrow on each bar's outer edge is the highest true peak that side has reached, and it sits above the thin bar. TRUE PEAK L and R in the readouts are the same figures as numbers. Both turn red when they go above your threshold.

True Peak Threshold

Range: -6.0 to 0.0 dBTP in 0.1 steps. **Default:** -0.3 dBTP.

Click the box, type a number, press Enter.

The level above which a true peak is shown in red. Nothing is limited or altered by it - it only decides what turns red, on the arrows, on the two TRUE PEAK readouts, and on the marks along the loudness chart.

-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.

Note: *The default is -0.3 rather than the -1.0 a broadcast compliance meter would use, and that is deliberate. Most music masters sit at -0.3 or -0.1 and are perfectly fine. A meter that showed red on all of them would teach you to ignore the colour, which is worse than not having it.*

MAX

One number, under the bars: the highest sample peak either channel has reached since the last reset. It turns red at or above 0 dBFS.

This is the one to use when you are setting a level. Play the loudest part, read MAX, and if it is not where you want it, change the level before fMeter - the clip gain, or the output of whatever is feeding it. Press RESET PEAKS and play it again.

RESET PEAKS

Clears everything on this page that is being held: the thin bars, the arrows, the OVER lamps, the MAX and the four readouts.

It leaves the loudness measurement alone - that has its own RESET, on its own page.

Tip: *Watch MAX and the two TRUE PEAK figures and you have covered the whole question of whether the file is safe. Everything else on this page is detail about how it got there.*

Tip: *An OVER lamp that lit once, hours ago, tells you nothing useful about what you are doing now. Get into the habit of pressing RESET PEAKS at the start of each pass, the same way you would zero a set of scales before weighing something.*

Phase And The Goniometer

On the right of the Levels page is a round scope, a white dot, and a thin strip underneath. Together they tell you whether your stereo will survive being played in mono.

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 your session whenever your 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.

Plenty of things add the two channels together without asking: club systems, phone speakers, laptop speakers, some radio, and anybody standing off to one side of a PA.

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 you spent an afternoon on is simply not there any more. And it sounds fine on your monitors, so nothing warns you until somebody plays it somewhere else.

Where it usually comes from

It is rarely something you 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 scope

It plots the left channel against the right, thousands of times a second, and leaves a glowing trail. You read it by shape:

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 going on 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: *The blob's size is level, not width. Quiet material draws a small shape whatever it is doing. If everything looks tiny, turn something up before drawing conclusions.*

Tip: *A normal mix looks tall with some width rather than round. The loud things - kick, bass, lead vocal - are usually centred and carry most of the energy, so they dominate the shape. Solo a hard-panned guitar and watch the shape shoot off to its corner, then unsolo it and watch it come back.*

The white dot

It rides the horizontal centre line and shows which side is carrying more of the level. Left edge means the left channel is louder, right edge means the right is, middle means they are even. It drifts with the music rather than jumping on every hit.

It is there because a leaning blob is ambiguous - it can lean because one side is louder, or because of how the two channels relate - and the dot answers the first question on its own. Shape tells you how stereo; the dot tells you which side.

The strip underneath

A graph over time, scrolling right to left, 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. MONO and INVERTED label the top and bottom.

It exists because the scope only shows this instant. If the bass goes out of phase for half a second while you are looking somewhere else, the scope has already forgotten and the strip still has it.

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 your mix in mono and listen. If nothing thins out or disappears, there is nothing to fix. The scope's job is to tell you when that check is worth doing, and roughly where in the track to listen.*

Digital - Loudness

How loud the whole thing is, measured the way streaming services and broadcasters measure it.

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.

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 mix sits so you can compare it against records you already trust.

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.

Tip: *The most useful thing you can do with this page early on has nothing to do with your own music. Load half a dozen records you know inside out, measure each one from start to finish, and write the figures down. Ten minutes of that will tell you more about where your mixes 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. The newest audio is always at the right-hand edge and history runs backwards to the left. The time axis is marked in how long ago something happened - "now" at the right, "-30s" and so on going left.

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, drawn as a second rule that settles as the measurement gathers.

Watching that line settle onto the target is the point of the page - you can see whether a mix is going to land without reading a number at all.

Red marks along the top edge, if you turn them on, show the moments true peak went above your threshold.

The chart only moves while the transport is rolling

Stop, and the chart holds where it is and the measurement stops gathering. Press play and it carries on from where it stopped.

Skipping the playhead about does not reset anything. The chart is a record of what you played, in the order you played it, not a picture of the song's timeline. RESET is how you say start again.

Tip: *To measure something properly - press RESET, play it from the top to the end without stopping, read INTEGRATED. That is the whole procedure, and it gives the same answer every time. Every loudness figure you will ever be asked for comes from those three steps.*

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 your mix or your master 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.

Everything since RESET, settling as it gathers into a single number describing the whole thing you played, rather than any particular moment inside it. 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.

Tip: *It only means something once you have played the whole thing. A number taken from the middle of a track is a number about the middle of a track.*

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. This is the one to watch while you work - 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 you 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 for its first minute. Below a minute there is not enough material to describe a spread.

Tip: *A good way to compare your mix against a recording you like. Measure 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 since RESET - the same measurement the Levels page shows, kept here so both figures are on one screen. Draws as red marks along the top edge.

TARGET

Range: -30 to -6 LUFS in 0.5 steps. **Default:** -14 LUFS.

The red dashed line on the chart. Set it to whatever you are aiming for and the chart shows how close the integrated reading is getting.

Drag the knob to change it, double-click to return to -14 .

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.

The zoom

Three small buttons above the chart's right-hand end, with the amount of time on screen shown beside them.

Button	What it does
+	Zoom in. Less time on screen, more detail.
–	Zoom out. More time.
Arrow	Return to the live edge. It is lit green while the chart is following.

The steps are 10 seconds, 30 seconds, 1, 2, 5, 10 and 20 minutes, and then one final position that shows everything you have measured so far, however long that is.

Every step scrolls: new audio arrives at the right, the oldest falls off the left, and the amount of detail stays the same however long you leave it running.

The final position is the exception. Because it always holds the whole thing, nothing can fall off - so instead of scrolling it stretches to fit, and everything on it gets a little narrower as time goes on. That is the trade for being able to see all of something that is not a round number of minutes long.

You cannot zoom out further than you have measured. Early on there is nothing behind you, so the minus button dims.

Dragging

Drag the chart left or right to look back at something. The arrow button goes dark while you are away from the live edge, and the time labels change to show how far back you are. Pressing the arrow brings you home, and so does dragging back to the right-hand end.

Zooming while you are scrolled back keeps you looking at roughly the same moment rather than throwing you to the end.

RESET

Clears the chart, the integrated reading, the range and the true peak figure, and starts gathering again. Press it before playing something you want to measure.

Important: *It does not clear the held peaks on the Levels page - that is RESET PEAKS, a different button on a different page. The two measurements are independent and you can reset either without disturbing the other.*

Printouts

PRINT OUT produces a printed report of the measurement, laid over the meter as a sheet. The dropdown beside the button picks which kind:

Kind	What is on it
Full report	Everything: the graph, the loudness figures, the range and the true peak.
Loudness summary	The loudness figures on their own.
Dynamic range	The range, its upper and lower bounds, and the peak to loudness ratio.
True peak log	The true peak figures and how many times the threshold was passed. No graph.

The figures are fixed at the moment you press the button. Nothing on the sheet changes while it is up, so what you read is what you send.

The graph always shows the whole measurement, whatever the chart happens to be zoomed to.

Anything above your true peak threshold, or more than a decibel away from your target, is shown in red.

Button	What it does
PNG	Saves the sheet as an image.
TEXT	Saves the same figures as a plain-text file.
CLOSE	Puts the sheet away.

Both go to Documents/fBox/fMeter Printouts, and the folder opens so you can find what you just made.

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: Print one before and after a change you are unsure about. Two sheets side by side is a clearer comparison than trying to remember a number.

Tip: Send a printout 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.

Patch Cards

A patch card is a copy of all your settings - which page you were on, your target, your true peak threshold, your VU reference and which lines you had drawing - written to a single file you choose the home for.

The Patch button in the header opens a menu:

Menu item	What it does
Save Patch Card	Write the current settings to a card.
Load Patch Card	Read one back in.

A patch card carries its identity, so a card saved for a different fBox product is refused with a note.

Your settings are also saved with your session, so a patch card is for carrying a setup from one project to another.

Note: Loading a card can change which page is showing, so the window may resize as it loads. That is correct - the card carries the whole setup, and the page you were on is part of it.

Tip: Keep one card per job. One for streaming work at -14 and -1.0 , one for broadcast at -23 and -1.0 , one for any other figure you are asked to hit. Loading a card sets everything at once, which is both faster and safer than setting three values by hand and hoping you remembered all three.

Automation

fMeter's controls are deliberately not exposed to your DAW's automation lanes, and that is a decision rather than an omission.

Nobody rides a meter's target during a take. Keeping these controls off the automation list means they cannot be recorded by accident, and they do not clutter a lane list you are using for things that actually change the sound. It is the same treatment the Quality selector already gets everywhere else in the range.

Everything still saves and reloads with your session exactly as you would expect - the page you were on, your target, your true peak threshold, your VU reference, which lines you had drawing, and the serial. Close the project and open it a month later and the meter is as you left it.

Performance and CPU

fMeter is cheap to run. It has no quality tier, because it has nothing to trade quality against. The other products in the range offer Eco, Studio and Master because their analogue character can be run lighter or heavier. fMeter has no analogue path to run at all. It reads what passes through and hands it on.

There is no Eco / Studio / Master selector and no need for one. Leave one on every channel if you want to.

It also reports zero latency and takes no part in your DAW's delay compensation. Adding or removing an fMeter cannot shift anything in time.

What fMeter Writes To Your Computer

For transparency, here is everything fMeter writes and where. It writes nowhere else, and sends nothing anywhere unless you choose to.

Folder	Contents
Documents/fBox/ Diagnostics	Plain-text diagnostic logs, kept so a crash can be worked out afterwards.
Documents/fBox/ fMeter Printouts	Your printed reports, as images and plain-text files. The folder is made the first time you print one.
AppData/Roaming/ fBoxAudio (Windows)	One small file recording that the mailing list window has been shown, so that it is not shown to you again.

Patch cards go wherever you save them. The meter's own settings live in your session, not in a file of their own. Nothing is filed away somewhere you did not pick, and nothing is written to your Desktop.

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

When something goes wrong

Diagnostics are written automatically as fMeter runs and survive a crash or freeze. If you hit a problem, zip the whole Documents/fBox/Diagnostics folder and email it to support@fboxaudio.com - send the entire folder, since what else was running alongside fMeter often explains the problem. Tell us what you were doing, what you expected, and what happened. The logs are plain text; you are welcome to read them, but you do not need to.

About The Serial Number

Every instance of fMeter has a unique serial number, shown in the watermark, and it is saved with your session.

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 printouts, where a serial would imply a calibrated instrument identity this one does not claim.*

fboxaudio.com