

ZOMBIEPHONE FX

BUNKER ANALOG · PRECISION METERING

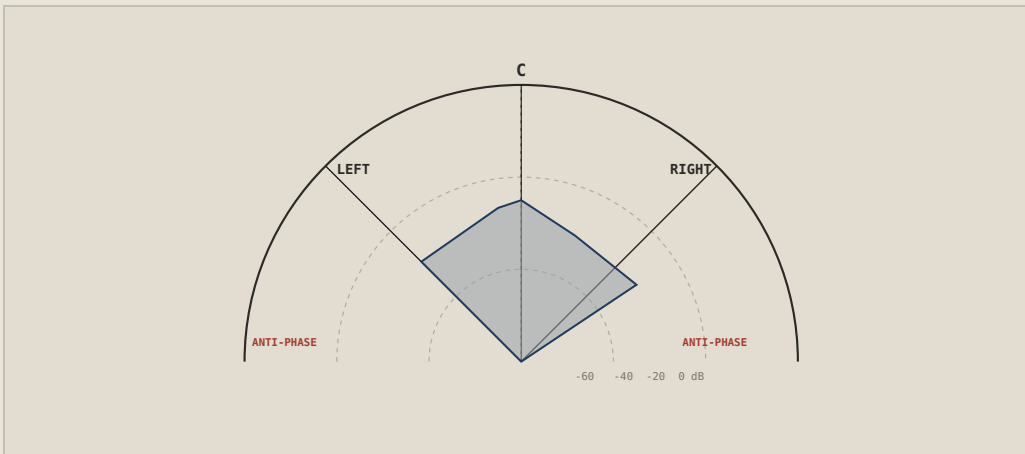
DOC	User Manual
REV	1.0 · 2026
TYPE	BKR-1V

IN-THE-BOX MASTERING METER · TYPE BKR-1V

BKR MASTERING METER

VST3 / AU

The full mastering meter — spectrum, loudness, phase and level — running natively on your master bus. The same four instruments as the Android app, in the box, plus an outbound UDP audio stream so an Android phone device can mirror the same meters.



PLUGIN BKR Mastering Meter · VST3 / AU

MIRROR Android phone (optional)

LINK UDP / Wi-Fi · audio · port 9002

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01 Overview

WHAT IT IS

The BKR Mastering Meter (VST3/AU) puts four mastering instruments — spectrum, loudness, phase and level — directly on your master bus, with no phone and no network required.

This is the in-the-box version of the BKR Mastering Meter. It loads like any plugin on your master bus and renders the same four instruments the Android app shows — **FFT**, **LUFS**, **PHASE** and **VU** — right inside your DAW.

Everything is computed locally, from the audio already passing through the bus. The plugin **does not alter the signal** — it only listens and measures.

On top of the meters, the plugin carries the same **UDP audio transmit protocol** as BKR MasterStreamer. Switch it on and the plugin broadcasts the master-bus audio to an Android phone, so the phone mirrors the same meters on a second screen. The transmitter is optional: the in-DAW meters work whether or not anything is listening.

Every tool answers a question a mastering — and especially a vinyl cutting — engineer cares about: true digital level, perceived loudness, sibilance, low-end mono compatibility, and how much dynamic range is left.

> How it works

Audio passes through the plugin on the master bus. The meters draw from it instantly. Optionally, the same audio is packaged into UDP packets and sent to an Android device.

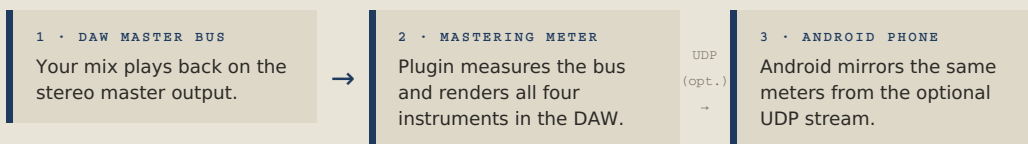


FIG. 1.1 — SIGNAL FLOW. METERS ARE LOCAL TO THE DAW; THE UDP MIRROR IS ONE-WAY AND OPTIONAL.

THE FOUR INSTRUMENTS

FFT	Spectrum + Waveform
LUFS	Loudness (S / I / LRA)
PHASE	Stereo · Correlation · Scope
VU	Average + Peak Level

NO NETWORK NEEDED

The meters run from the bus audio itself. Nothing is sent anywhere unless you turn the UDP transmitter on.

MIRROR TO A PHONE

Built-in MasterStreamer-style UDP audio transmit lets an Android phone display the same meters wirelessly — see §04.

02 Requirements & Compatibility

BEFORE YOU START

> Plugin (computer)

FORMATS	VST3 · AU
HOST OS	macOS · Windows
PLACEMENT	Master / stereo bus
CHANNELS	Stereo (2ch)
INSTALLER	.pkg (double-click)

> Mirror device (optional)

PLATFORM	Android 8+ *
APP	BKR Mastering Meter
NETWORK	Wi-Fi (same LAN)
SOURCE	~/zombiephonefx

* Built for Android 8 and up. Older versions may still run — without guarantee. The phone is only needed if you use the UDP mirror.

> The meters need no network

Because this is the in-the-box version, the four instruments work the instant the plugin is on the master bus. No IP, no port, no firewall — nothing to configure for metering.

The network only matters if you turn on the **UDP transmitter** to mirror the meters on a phone (§04). That path uses UDP, so it must be allowed (not blocked by a firewall, VPN, or “client isolation” on the access point).

NOT SUPPORTED YET

iPhone / iPad (iOS) — the mirror app is Android-only at this time.

Native AAX — there is no AAX build yet.

> Pro Tools

Because there is no native AAX plugin, Pro Tools users can run the VST3 version inside a third-party VST-to-AAX wrapper. Insert the wrapper on the master bus, load BKR Mastering Meter inside it, and configure it exactly as in any other DAW.

ALSO IN THE BOX

Prefer to send instead of mirror? The companion **BKR MasterStreamer** ships separately for sending audio and timecode to other ZombiePhone apps — this plugin folds the same audio transmitter in alongside the meters.

03 Quick Start

3 MINUTES

The short version. Full detail follows in §04 (mirror) and §05 onward (instruments).

- 1 Install the plugin**

Download the package from bunkeranalog.com/zombiephonefx and double-click `BKR_MasteringMeter_Installer.pkg` to install the VST3/AU.
- 2 Restart the DAW / rescan**

Quit and reopen your DAW, or force a plugin rescan, so it picks up the newly installed plugin.
- 3 Insert on the master bus**

Drop it on the master / stereo bus — the last point before the output.
- 4 Press play & pick a view**

Start playback — all four meters move immediately. Tap FFT, LUFS, PHASE or VU on the left rail to switch.
- 5 (Optional) mirror to a phone**

Open SETTINGS, type the Android device's IP, set the audio port (9002), and tick ACTIVATE UDP AUDIO STREAM.
- 6 Confirm the mirror**

The “Dispatched” counter climbs while audio plays; the phone shows the same meters.

WORKING WHEN

The meters move the moment the DAW plays — no network needed. For the mirror, the “Dispatched: N packets” counter rises while audio plays.

NO PHONE? NO PROBLEM

The mirror is entirely optional. Leave the UDP toggles off and use the plugin purely as an in-DAW meter.

04 Mirror To A Phone

OPTIONAL UDP AUDIO TRANSMIT

This plugin transmits, the Android app receives — the reverse of the standalone app, which only listens. You just need both ends to agree on one address and one port, on one network. **This whole section is optional;** skip it if you only use the in-DAW meters.



FIG. 4.1 — THE PHONE'S IP IS THE PLUGIN'S DESTINATION. BOTH ENDS USE THE SAME AUDIO PORT.

> Step by step

- 1 **Same Wi-Fi**
Put the phone and the computer on the same router/network — not a guest network or mobile data.
- 2 **Find the phone's IP**
Open the BKR Mastering Meter app, tap SETTINGS, and read the IP it shows under Network Config (e.g. 192.168.0.42).
- 3 **Open the plugin's SETTINGS**
In the plugin, open SETTINGS to reach the UDP transmit fields (§10).
- 4 **Enter IP & port**
Type the phone's IP into the Android IP field. Leave 9002 for audio unless the app asks otherwise.
- 5 **Activate & play**
Tick ACTIVATE UDP AUDIO STREAM, then play. The Dispatched counter climbs and the phone's meters move.

> The stream

AUDIO	16-bit PCM · port 9002
CHANNELS	Stereo (2ch)
DIRECTION	One-way · plugin → phone

A RISING COUNTER ≠ PHONE RECEIVING

The Dispatched counter only proves the plugin is sending. If it climbs but nothing shows on the phone, the issue is the network (firewall, isolation, wrong IP) — see §11.

TIP — STATIC IP

Reserve a static / DHCP-reserved IP for the phone in your router so you don't re-enter it every session.

AUDIO ONLY

This plugin mirrors the master-bus **audio** so the phone can run the meters. It does not transmit timecode — for timecode/tally, use the separate BKR MasterStreamer.

05 The Interface

NAVIGATION

Every instrument shares one layout: a fixed navigation rail on the left, the instrument screen in the center, and a row of controls along the bottom.

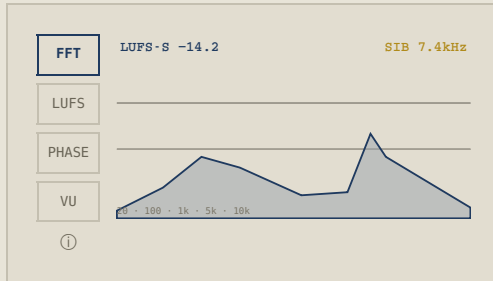


FIG. 5.1 — SHARED LAYOUT (FFT SHOWN). RAIL · SCREEN · CONTROLS.

> Navigation rail

Four instruments, always one tap away. The lit button is the active view; the ⓘ badge opens the About / download panel.

FFT	Spectrum & waveform
LUFs	Loudness numbers
PHASE	Stereo & scope
VU	Average + peak meter

> Common controls

SETTINGS appears on every screen. A filled (green) button is engaged; an outlined button is off — the same convention across all instruments (FREEZE, PEAK HOLD, WAVEFORM, SCOPE, TRIGGER...).

ALWAYS-ON READOUT

A small LUFs-S value sits in the top-left of the FFT and PHASE screens so loudness stays visible while you work elsewhere.

06 FFT — Spectrum Analyzer

INSTRUMENT 1

A high-resolution real-time spectrum with a built-in vinyl sibilance watch, plus an alternate scrolling waveform overview for judging transients and headroom.

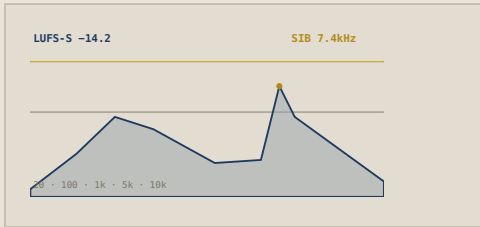


FIG. 6.1 — FFT VIEW. NUMBERS KEYPED TO THE LIST AT RIGHT.

> Controls

BUTTON	FUNCTION
WAVEFORM	Switches the screen to a scrolling ~6 s mono (L+R) waveform overview.
FREEZE	Holds the current display so you can study it.
PEAK HOLD	Leaves a phosphor trace at each band's maximum (and outlines the waveform's peak envelope).
SETTINGS	Opens Network / Transmit config and the sibilance thresholds (§10).

- 1 LUFS-S readout**
Short-term loudness, always visible.
- 2 SIB callout**
The single frequency most at risk for sibilance — yellow = warning, red = danger.
- 3 0 dBFS line (gold)**
Digital full scale. Anything touching it is clipping the converter.
- 4 Spectrum trace**
1/16-octave resolution, 161 bands from 20 Hz up.
- 5 Frequency axis**
Logarithmic, 20 Hz – 20 kHz.
- 6 Navigation rail**

> The vinyl sibilance watch

High-frequency energy (roughly 2–10 kHz) is what makes a lacquer overheat and a stylus mistrack. The analyzer scores each band against your Warning and Danger thresholds (§10) and surfaces the worst offender as the SIB frequency. Bands in trouble turn yellow, then red. De-ess or dip that region until the callout clears.

RESOLUTION	1/16 octave · 161 bands
RANGE	20 Hz – 20 kHz · log
LEVEL SCALE	-120 ... +6 dBFS
WAVEFORM	~6 s · mono sum · dBFS ruler

> Waveform overview — transients & headroom

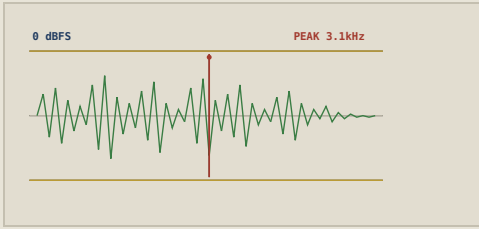


FIG. 6.2 — WAVEFORM OVERVIEW. GREEN BODY; PEAK TIPS COLOUR ORANGE-RED AS TRANSIENTS STAND OUT.

Press WAVEFORM to swap the spectrum for a scrolling **~6-second mono (L+R)** overview — the dense, filled shape you'd see on a DAW timeline. New audio enters from the right.

The vertical axis is **dBFS**, mirrored about the centre line, with the **0 dBFS** edges marked in gold — the gap from a peak tip to that line is your headroom. The body of the wave stays green; only the **tips of peaks that rise above the on-screen average** colour up, orange then red, the more they stand out. Ordinary dynamics stay green, so the transients a limiter would catch are exactly the ones that light. Watch them shrink back into the body as you apply compression.

With PEAK HOLD on, the maximum envelope is outlined above the live wave and a PEAK callout names the dominant frequency of the loudest transient.

07 LUFS — Loudness Meter

INSTRUMENT 2

Perceived loudness to the ITU-R BS.1770 standard, on a large 7-segment readout. Three metrics share one display.



FIG. 7.1 — LUFS VIEW SHOWING SHORT-TERM. THE FAINT “88.8” IS THE UNLIT-SEGMENT BACKDROP.

> Choosing a metric

The bottom row selects what the big number shows. RESET LRA clears the integration history so Integrated and Range start measuring fresh — use it at the top of each track.

METHOD

K-weighted per ITU-R BS.1770 (high-shelf + high-pass), measured at 10 Hz. Integrated and LRA use the standard absolute (–70 LUFS) and relative gates; LRA also applies the –20 LU range gate.

- 1 **Metric label**
Which loudness metric is on screen.
- 2 **Main readout**
True 7-segment numerals with a phosphor glow.
- 3 **Unit**
LUFS for S/I, LU for LRA.

> The three metrics

METRIC	WINDOW	WHAT IT TELLS YOU
LUFS-S Short-term	3 s	Loudness of the last 3 seconds — the “how loud is this part” number.
LUFS-I Integrated	whole pass	Gated average loudness since the last reset — the single number that describes the master.
LRA Range	whole pass	Loudness Range in LU (95th – 10th percentile). How dynamic the master is.

08 PHASE — Stereo & Correlation

INSTRUMENT 3

A polar energy/correlation meter that shows where your stereo image sits — and warns when content drifts out of phase. A built-in scope with a triggered mode and a vinyl-specific low-frequency mono check round it out.

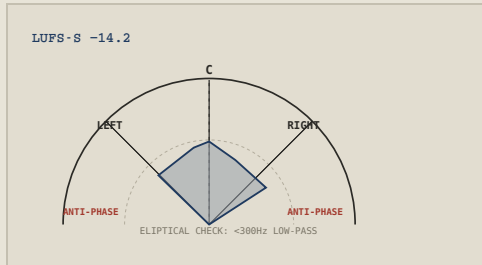


FIG. 8.1 — PHASE (X-Y ENERGY) VIEW. LIVE ENERGY FANS OUT BETWEEN LEFT AND RIGHT.

> Elliptical Check — for vinyl

A record can't hold out-of-phase bass: it makes the cutter head jump vertically and the needle skip. Elliptical Check applies a ~300 Hz low-pass so the meter shows only the low end. If that low-frequency energy doesn't collapse toward Center, your bass isn't mono — narrow it before cutting. (Applies to the X-Y energy view.)

- 1 **Center (C)**
Straight up = perfectly mono / centered energy.
- 2 **Left / Right**
Energy leaning to a side shows the image pulling that way.
- 3 **Anti-phase zones**
Past the L/R edges = out-of-phase content that may vanish in mono.
- 4 **Energy fill (live)**
The glowing shape is the current stereo distribution.
- 5 **Elliptical Check status**
Shown when the <300 Hz low-pass is engaged.

> SCOPE mode

The SCOPE button swaps the polar meter for an oscilloscope. By default it's a dual-trace view — Left on top, Right below, amplitude vs. time. The X-Y button turns it into a classic Lissajous vectorscope (X = side, Y = mid) for reading width and phase as a shape.

TRIGGER — VST EXCLUSIVE

The scope has a **TRIGGER** toggle the app doesn't. **FREE** lets the trace run continuously; **TRIGGERED** locks each sweep to a rising zero-crossing so the waveform stands still on screen — far easier to read width and phase on sustained material.

09 VU — Loudness Meter

INSTRUMENT 4

A combined loudness meter that shows average level and peak level on one scale at the same time — so you read loudness and crest factor in a single glance.

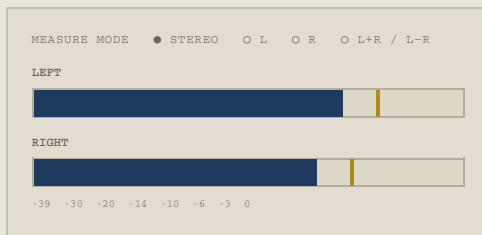


FIG. 9.1 — VU VIEW, STEREO MODE. SOLID BAR = AVERAGE; FLOATING TICK = PEAK.

- 1 **Average bar**
The filled LED bar — perceived/RMS level.
- 2 **Peak tick**
The floating segment — the instantaneous peak. The gap to the bar is your crest factor.
- 3 **Color zones**
Green → yellow → red as level rises toward 0.
- 4 **dB scale**
–39 dB up to 0.
- 5 **Measure mode**
Choose what the two meters show.

> Measure modes

MODE	TOP / BOTTOM METER
STEREO	Left / Right
L	Left solo / muted
R	muted / Right solo
L+R / L-R	Sum (mono) / Diff (side)

L+R / L-R is the vinyl mode: the Sum meter is your mono content, the Diff meter is the stereo “side.” If Diff rivals Sum in the low end, your bass is too wide to cut cleanly. **PEAK HOLD** freezes the highest peak tick; **RESET PEAK** clears it.

10 Settings

AUDIO TRANSMIT & THRESHOLDS

The SETTINGS sheet, reachable from every instrument, holds the UDP audio transmit link to a phone and the sibilance thresholds that drive the FFT's SIB watch.

> Transmit Config

Unlike the app — which *receives* — this plugin *transmits*. The fields here are the same as BKR MasterStreamer's audio panel: the destination Android IP, the audio port, and the activation toggle. Nothing is sent until the toggle is on.

AUDIO STREAM	
ANDROID IP	192.168.0.42
UDP AUDIO PORT	9002
ACTIVATE AUDIO	✓ ON
DISPATCHED	16650 packets
STATE	Streaming

PORT

Default is 9002 (audio). Any value 1024-65535 works — just use the same number on both ends. The meters keep working regardless; the port only affects the mirror.

NO TIMECODE HERE

This plugin sends audio only. Timecode and tally are not transmitted — that's the job of the separate BKR MasterStreamer.

> Sibilance Threshold

Two markers define when a high-frequency band is flagged, relative to the material's own average — so the watch adapts to each master rather than a fixed dB value.

MARKER	DEFAULT	MEANING
WARNING	-6 dB	Band turns yellow; SIB shows it in yellow.
DANGER	0 dB	Band turns red and outranks any warning.

Range -24...+24 dB. Lower the markers to catch sibilance earlier (cautious cut); raise them to flag only the harshest peaks.

TRANSMIT IS OPTIONAL

Leave the ACTIVATE UDP AUDIO toggle off to run as a pure in-DAW meter. The sibilance thresholds work either way — they drive the local FFT regardless of the network.

MATCH THE APP'S PORT

If you mirror to the phone, the port set here must match the port shown in the app's own SETTINGS sheet.

11 Troubleshooting

METERS OR MIRROR?

Two kinds of problem: the in-DAW meters, or the optional phone mirror. The meters need no network, so most network items below apply only to the mirror.

SYMPTOM	CHECK
Meters don't move at all	Confirm the plugin is on a track that's actually playing audio, and on the master/stereo bus. Check FREEZE isn't engaged.
Plugin missing after install	Restart the DAW or force a plugin rescan so it picks up the freshly installed plugin. On Pro Tools, load the VST3 inside a VST-to-AAX wrapper (§02).
Counter stays "Stream Inactive"	The ACTIVATE UDP AUDIO toggle isn't on, or the DAW isn't playing. The transmitter only counts packets while audio plays.
Counter rises, nothing on phone	Confirm the destination IP matches the phone's current IP exactly (it changes on reconnect). Confirm the ports match on both ends and both devices are on the same Wi-Fi/subnet.
Mirror worked, then stopped	The router likely reassigned the phone's IP. Reserve a static IP (§04), re-find the IP, and re-enter it.
Mirror never worked	Disable any VPN on the phone. Turn off "client / AP isolation" on the router. Allow the DAW through the computer's firewall (outbound UDP).
Mirror stutters / lags	Wi-Fi congestion. Use a 5 GHz network, move closer to the router, or reduce other network load. (Does not affect the in-DAW meters.)
Display freezes	Check whether FREEZE is engaged — it's a feature.

FASTEST TEST

If the in-DAW meters move, the plugin is fine — any remaining problem is the phone mirror (network). If they don't move, the issue is placement, FREEZE, or the plugin not on the master bus.

12 Glossary

TERMS

LUFS

Loudness Units relative to Full Scale — the standard unit of perceived loudness (BS.1770).

LU

Loudness Unit; a relative loudness difference. 1 LU = 1 dB. Used for LRA.

LRA

Loudness Range — the spread between quiet and loud passages (95th – 10th percentile).

dBFS

Decibels relative to digital Full Scale. 0 dBFS is the maximum; above it is clipping.

K-weighting

The frequency weighting (shelf + high-pass) applied before measuring LUFS.

Crest factor

The gap between peak and average level — how “punchy” vs. squashed a signal is.

Correlation / Phase

How alike the L and R channels are. Centered = mono; spread = wide.

Anti-phase

L and R cancelling each other — content that disappears in mono.

Trigger (scope)

Locking each scope sweep to a rising zero-crossing so the waveform stays still. FREE runs continuously.

Mono compatibility

Whether a stereo mix survives being summed to mono — critical for vinyl.

FFT

Fast Fourier Transform — the math that turns audio into a frequency spectrum.

1/16 octave

The spectrum’s band resolution: each octave split into 16 bands.

Sibilance

Harsh “s/sh” energy around 2–10 kHz that can damage a vinyl cut.

Peak / average meter

A meter showing peak and average level together on one scale, so loudness and crest factor read at a glance.

Vectorscope / Lissajous

An X-Y plot of L vs. R that draws the stereo image as a shape.

Elliptical EQ / check

Mono-ing the low frequencies (here, a <300 Hz check) so bass can be cut to disc.

UDP

The lightweight network protocol the optional audio mirror stream travels over.

BKR Mastering Meter · VST3 / AU

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