DOTMATRIX

LIGHTWEIGHT ENGINEERING

DOTMATRIX / LIGHTWEIGHT AUDIO PLUGINS

ANALOGER32

The Harrison 32-series channel and mix strip, modelled from Harrison's own circuit drawing.



Analoger32 by Dotmatrix

USER GUIDE | VERSION 1.0.0 | AU | VST3 | CLAP | macOS 10.14+ | INTEL + APPLE SILICON

Broad, musical bells, the famous filter lift, a Jensen front end. Every curve straight from the circuit.

CONTENTS

User guide

Getting started 4

The panel 5

Dark or light 6

Where it comes from 7

Input 8

Filters 9

Equalizer 10

Output and mix 11

Presets 12

Reference and troubleshooting 13

— ABOUT ANALOGER32

Analoger32 is a channel strip and mix strip from Dotmatrix, modelled on the Harrison 32-series: the 1975 console whose EQ became one of the most loved in recording history, and the 32Classic MS Mix Strip that carries it today. Its four bands come from Harrison's own 1977 drawing of the console's input module: each band's summing amplifier, boost and cut pot and Wien-bridge resonator is modelled exactly, so the famous proportional Q is the circuit's own, broad and musical on small moves, tightening as you push. LO and HI switch between gentle 6 dB/oct shelves and bells, as on the 32Classic. After the EQ come the Harrison high- and low-pass filters, 12 dB/oct Sallen-Key stages whose Q of 1 gives the high-pass its signature lift just above the corner, tightening a kick or a bass as it clears the mud. In front is the input section: a Jensen-transformer mic preamp with 20 to 70 dB of gain and a pad, a HiZ instrument input and a line input with trim. Behind it, the fader with its 0 dB switch, pan and the stereo mix bus. A live response curve shows exactly what the circuit is doing, and the strip's bi-colour LEDs and a dBu peak read-out show the level. The strip's own noise is there at Harrison's specification, rising with mic gain, and you can switch it off; the oversampler (4x by default, up to 8x) keeps the preamp and line drivers clean until you deliberately slam them. Twenty-one factory presets cover console line-ups, drums, bass, vocals, instruments and character, and you can save your own. Analoger32 runs as an AU, VST3 and CLAP plug-in, universal for Apple Silicon and Intel Macs on macOS 10.14 or later, with a dark or light panel you can resize from 60 to 200 %. Harrison and 32Classic are trademarks of their owner; Dotmatrix is not affiliated with or endorsed by Harrison Audio.

— QUICK FACTS

Type	Channel strip and mix strip: input (mic, instrument, line), 4-band EQ, high- and low-pass filters, fader, pan and stereo mix bus, in one audio effect.
Formats	Audio Unit, VST3 and CLAP effects. Universal: Apple Silicon and Intel, macOS 10.14 Mojave or later on Intel, macOS 11 or later on Apple Silicon.
From the circuit	Harrison's 3232 input/output module drawing (PC1003-A, 1977): every EQ band and both filters, component for component.
Clean	Oversampling 4x by default (none, 2x, 4x or 8x). The EQ and filters are magnitude-matched to their analogue curves.
Presets	21 factory presets: console, drums, bass, vocals, instruments and character. Your own are saved in ~/Music/Analoger32 Presets.
Identity	Manufacturer Dotmatrix (Dtmx). AU code: An32.

SECTION 01

Getting started

Put it on a track, shape it with the four bands, then clear the low end with the filters.

— NEW IN VERSION 1.0

1.0	The first release: the 32-series EQ and filters from Harrison's own drawing, the Jensen mic preamp, HiZ and line inputs, fader, pan and mix bus, the live response curve, dark and light panel, 21 factory presets.

— INSTALLING

Copy each plug-in from the download's **Plug-Ins** folder into its folder: **~/Library/Audio/Plug-Ins/Components** (Audio Unit), **~/Library/Audio/Plug-Ins/VST3** and **~/Library/Audio/Plug-Ins/CLAP**. The release is not yet signed through Apple's developer program, so macOS needs one Terminal line before it will load it; **READ ME FIRST.txt** in the download has the exact steps. Logic Pro checks new Audio Units the first time it starts; Analoger32 appears under **AU Effects > Dotmatrix**.

— FIRST STEPS

1	**Insert it**	Put Analoger32 on a track, where a console channel would be (in Logic: Audio FX > Dotmatrix > Analoger32).
2	**Pick a preset**	It opens on **Flat Line-Up**: LINE input, EQ in and flat, filters out, unity gain. Click the preset name for the other 20, or step with the arrows.
3	**Shape it**	Turn a band's boost/cut knob and watch the curve on the glass. Small moves are broad; push harder and the bell tightens: the 32-series' proportional Q.
4	**Clear the low end**	Press **FLT** and bring HIGH PASS up under a kick or a bass. Just above the corner the curve lifts by about 1.25 dB: the Harrison filter bump that keeps the weight while the mud goes.
5	**Drive the front end**	Press **MIC** to run the track through the Jensen transformer and preamp. 20 dB of gain is unity; turn it up for more level into the strip and bring the FADER down to match.

— BASIC HANDLING

Dials	Drag up or down. Double-click to reset. Click the value under a dial to type one (frequencies take k, as in 2.5k; pan takes L20, C or R20).
Keys	The lit key is the one chosen: MIC, HIZ or LINE. FLT, EQ, BELL, 0 DB, PAN, MIX, NOISE and BYPASS light when on.
Response	The glass draws the EQ and filter curve from the same circuit equations the sound comes from: each band tinted, the total in dark ink, dashed lines at the filter corners.
LEDs	SIG after the input, MIX L and R on the bus. Green from -14 dBu, yellow from +4 dBu (0 VU, -18 dBFS), red from +18 dBu: the 32Classic MS's own thresholds.
LCD	The peak level in dBu, held for a second. Click it to switch between the OUTPUT and the SIG point. The op-amps run out at +24 dBu (+2 dBFS).
Help line	Hover over any control and the strip at the bottom of the panel says what it does.
Light and size	LIGHT switches to the light panel and back; every window remembers it. Drag the window's corner for any size from 60 to 200 %.

SECTION 02

The panel

The response bridge across the top, then the strip left to right as the signal meets it: input, filters, equalizer, output and mix.



Header	LIGHT, the preset name with its arrows, SAVE, and the LCD peak read-out (click it to switch OUTPUT / SIG).
Response	The live EQ and filter curve, the SIG and MIX LEDs, and a read-out of the path: input, gain, filters, fader, oversampling and latency.
Input	MIC, HIZ or LINE; GAIN and LINE trim; the -20 pad and POLARITY.
Filters	HIGH PASS and LOW PASS, and FLT to put them in.
Equalizer	LO, LO-MID, HI-MID and HI: frequency over boost/cut. BELL on LO and HI; EQ to put it in.
Output / Mix	FADER with 0 DB, PAN with its switch, MIX and MIX OUT; NOISE, oversampling and BYPASS.

SECTION 03

Dark or light

The same panel, lit two ways. LIGHT switches it; drag the window's corner for any size from 60 to 200 %.

— LIGHT

A light panel with light grey dials and keys, for bright rooms. The response glass, the LCD and the LEDs stay lit the same way.



SECTION 04

Where it comes from

Analoger32 is built from Harrison's own drawing of the 32-series console, not from impressions of the sound.

— THE EQ: ONE CIRCUIT, FOUR TIMES

Every band on Harrison's 3232 input/output module drawing (PC1003-A, rev 3, 1977) is the same circuit. An inverting summing amplifier has a 10k boost/cut pot across it; the pot's wiper drives a Wien-bridge resonator (a 2.4k resistor and one half of a 50k dual frequency pot in each arm) whose output feeds back into the amplifier. Only the capacitors change from band to band. Analoger32 solves that circuit exactly. The proportional Q is not a curve someone drew: it is what the network does. Small boosts and cuts are broad (Q about 0.42); at 10 dB the bell has tightened to about 0.54. Boost and cut are exact mirror images.

— THE FILTERS

The high-pass is a Sallen-Key stage with two 0.1 microfarad capacitors and a gain of two, so its Q is 1. That is where the famous lift comes from: about 1.25 dB just above the corner. The low-pass is a unity-gain Sallen-Key stage (47 and 12 nanofarads), Q 0.99, with a matching lift just below its corner. Both dials read the -3 dB point, and the circuit's values land on Harrison's ranges almost exactly (25 Hz to 3.15 kHz, 160 Hz to 20 kHz). As on the 32Classic, they come after the EQ.

— THE INPUT

Harrison's 32Classic specifications set the rest: a Jensen-transformer mic preamp with 20 to 70 dB of gain and a -20 dB pad ahead of the transformer, a 1.2 megohm instrument input, a line input with +/-10.5 dB of trim, +24 dBu op-amp headroom and the strip's noise (mic EIN -127 dBu). The transformer is flat within a quarter of a dB from 20 Hz to 20 kHz, with the gentle low-frequency phase shift and the low-frequency saturation of a real core.

SECTION 05

Input

Where the signal comes in.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
MIC	key	off	The track goes through the Jensen input transformer and the mic preamp, as if it were the microphone: 0 dBFS is +2 dBu at the jack.
HIZ	key	off	The front-panel instrument input (1.2 megohms, no transformer) into the same preamp.
LINE	key	on	The electronically balanced line input with its trim: the cleanest way through the strip.
Gain	20 to 70 dB	20 dB	Mic and instrument preamp gain. 20 dB (pad out) or 40 dB (pad in) is unity; above that the preamp gets hotter, up to its +24 dBu rail.
Line	-10.5 to +10.5 dB	0 dB	The line input trim.
-20	on / off	off	The pad, ahead of the transformer: 20 dB less level into the core, 20 dB more gain needed.
Polarity	on / off	off	Flips the signal's polarity, for multi-miked drums and the like.

GAIN STAGING With MIC, every dB of gain over 20 adds a dB of level. Bring the FADER down by the same amount to compare like for like.

SECTION 06

Filters

The Harrison high- and low-pass filters, after the EQ.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
High Pass	25 Hz to 3.15 kHz	25 Hz	12 dB/oct, the dial at the -3 dB point. Q 1 gives a +1.25 dB lift about an octave above the corner.
Low Pass	160 Hz to 20 kHz	20 kHz	12 dB/oct, the dial at the -3 dB point, with a matching gentle lift just below it.
FLT	on / off	off	Puts both filters in.

THE BUMP Set the high-pass a little below a kick's or a bass's fundamental: the lift lands on the note while everything under it goes.

THE PRANK The ranges overlap. Sweep the high-pass above the low-pass and nothing gets through, exactly as on the console.

SECTION 07

Equalizer

Four overlapping bands, each with the 32-series' proportional Q.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Lo	40 to 600 Hz, +/-10 dB	100 Hz, 0	A 6 dB/oct shelf; BELL makes it a bell. The shelf comes from the same network with one capacitor switched out, so its corner sits above the dial, as on the hardware.
Lo-Mid	200 Hz to 3.1 kHz, +/-10 dB	600 Hz, 0	A bell.
Hi-Mid	400 Hz to 6 kHz, +/-10 dB	2 kHz, 0	A bell.
Hi	900 Hz to 13 kHz, +/-10 dB	6 kHz, 0	A 6 dB/oct shelf (its corner below the dial); BELL makes it a bell.
EQ	on / off	on	Puts the four bands in. They keep running when it's out, so switching never clicks.

CALIBRATION Each boost/cut knob reads the bell's gain at its centre. The real pot reaches about 12 dB at its ends; Analoger32 keeps to the 32Classic's +/-10.

BROAD STROKES The bands are wide and overlap a lot: two neighbours at a few dB each make one smooth, natural tilt.

SECTION 08

Output and mix

The channel output and the stereo mix bus.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Fader	off to +10 dB	0 dB	The channel output level, into the line driver.
0 dB	on / off	off	Locks the output at unity, bypassing the FADER.
Pan	L50 to R50	C	Pans onto the mix bus with a -3 dB law (the centre is kept at unity). On a stereo track it balances the sides. Needs PAN and MIX.
Mix	on / off	off	Sends the channel through pan, the summing amplifier and MIX OUT. Off, you hear the channel's direct output.
Mix Out	off to +10 dB	0 dB	The mix bus output level.
Noise	on / off	on	The strip's own noise at Harrison's specification: it rises with mic gain, and is far below the music otherwise.
Oversampling	None, 2x, 4x, 8x	4x	4x keeps the preamp and line drivers clean right up to their rails; 8x for deliberate clipping; None for the least CPU.
Bypass	on / off	off	Bypasses everything, latency-matched, so A/B comparisons line up.

CPU At 4x a stereo instance uses about 2 % of one core on Apple Silicon.

SECTION 09

Presets

Twenty-one factory presets. Console has line-ups and the filters alone; Drums, Bass, Vocals and Instruments are starting points for those sources; Character has the telephone, the mix strip glue and the bare filter bump. SAVE stores your own in ~/Music/Analoger32 Presets; they appear in the menu under User presets.

CATEGORY	22 PRESETS
Console	Flat Line-Up, Through the Jensen, Pre Pushed, Classic Filters Only
Drums	Kick Weight, Snare Crack, Toms Round, Overheads Air, Room Crush
Bass	DI Bass, Bass Tighten
Vocals	Lead Vocal, Vocal Up Front, Backing Vocals
Instruments	Acoustic Sparkle, Electric Rhythm, Piano Clear, Synth Pad Seat
Character	Telephone, Mix Strip Glue, Low Bump
Yours	Every preset you save, listed under User presets

— RECIPES

01	**Kick with weight**	**Kick Weight**: the high-pass at 32 Hz lifts the fundamental, a LO bell adds body, the low mids scoop out the box.
02	**A vocal that sits**	**Lead Vocal**: high-pass at 90 Hz, a broad dip at 300 Hz, presence and air from the HI shelf.
03	**DI bass**	**DI Bass**: the HiZ input, a little low shelf and some 1.4 kHz for the strings.
04	**Glue**	**Mix Strip Glue**: through the Jensen front end, gentle shelves, onto the mix bus.
05	**Telephone**	**Telephone**: the filters alone, 700 Hz to 2.8 kHz.

SECTION 10

Reference and troubleshooting

— TECHNICAL NOTES

Signal flow	Input (Jensen transformer and preamp, HiZ or line), polarity, the four EQ bands, the high- and low-pass filters, the fader and line driver, then pan, the mix bus and MIX OUT.
Clean by design	A linear-phase half-band oversampler; every EQ band and filter magnitude-matched to its analogue circuit, so the curves keep their shape right up to 20 kHz.
Latency	The oversampling filters only: 105 samples at 4x. Analoger32 reports it to the host, which compensates. None has no latency.
Sessions	A project stores every parameter, the preset and the LCD view. Presets are small XML files.
Compatibility	Universal (Apple Silicon and Intel). VST2 is not available: Steinberg no longer licenses it. CLAP is built with the open-source clap-juce-extensions.
Trademarks	Harrison and 32Classic are trademarks of their owner, and Jensen of its owner. Dotmatrix is not affiliated with or endorsed by Harrison Audio; the names only identify what is emulated.

— TROUBLESHOOTING

It gets much louder with MIC	MIC treats the track as a microphone: 20 dB of gain is unity. Lower GAIN, press -20, or bring the FADER down.
The LCD reads red	Peaks are above +18 dBu, near the op-amps' +24 dBu rail. Lower GAIN, the EQ boosts or the FADER.
Nothing changes when I turn a band	EQ is out (its key unlit), or for the filters, FLT is out.
PAN does nothing	Pan works on the mix bus: press MIX and PAN.
It does not appear in Logic	Run the Terminal lines in READ ME FIRST.txt, then restart Logic. In Logic > Settings > Plug-in Manager, select it and click Reset & Rescan Selection.
My presets are missing	They live in ~/Music/Analoger32 Presets. Copy the .xml files there on another Mac.



Analoger32 by Dotmatrix

Lightweight audio plugins. Documentation for version 1.0.0.