USER MANUAL
Version 1.0 — 04/2024

Bettermaker™

THANK YOU FOR PURCHASING BETTERMAKER VALVE STEREO PASSIVE EQUALIZER!

This device boasts a genuine analog sound processing system meticulously designed with premium-grade military NOS Soviet vacuum tubes, low noise FET-input Burr-Brown™ opamps, hand matched inductors, capacitors and in-house manufactured Bettermaker TT-1 audio transformers. All designed, developed and built by our talented team in Poland.

The transformers represent the closest substitute to renowned vintage models, ensuring a distinguished auditory experience characterized by minimal harmonic distortion, particularly in the lower frequency range. For those seeking an enhanced warmth in sound, we recommend activating the "HEAT" mode.

Enjoy!

ABOUT VACUUM TUBES

Please remember to turn on the device at least 20 minutes before starting work. Vacuum tubes need time to warm up and stabilize their operating parameters. If you do not use the device for a long time, switch to standby mode by holding the STBY/ON button. This will significantly extend the life of the vacuum tubes.

IMPORTANT SAFETY INFORMATION

Do not operate this unit in the presence of rain, liquids or condensing moisture. Liquid entering the product enclosure presents the risk of electric shock, fire or permanent failure. Use the unit in well ventilated environment. Make sure it is not exposed to high temperatures as it might affect the performance and shorten the life of the vacuum tubes inside the unit.

Use provided AC/DC adapter only. It will work with variety of mains voltages and all most popular socket types around the world.

No user serviceable parts are available inside the unit. Do not remove the top lid, as it will void the warranty. Vacuum tube replacement is possible only under the manufacturer's guidance. In case of any questions or issues, please contact your seller.

CONNECTIONS

For best audio performance use balanced XLRs and quality USB cable. Please note that the USB link is for DAW control and recall only. It does not stream audio to the device, so the XLR connection with AD/DA converters is needed. The DAW plugin provides some useful DSP functionality that can be used without the hardware.

The unit requires external power supply and will not work using USB power only.

For the most recent versions of firmware and DAW plugins please visit **www.bettermaker.com**

Keeping your hardware and software up-to-date ensures full compatibility with the latest DAWs and operating systems as well as trouble free work flow.

FIRMWARE UPDATE

To begin with firmware update procedure make sure the VSPE is powered off (hold ON/STBY button for 2 seconds until all lights go away) and the USB cable is connected to your computer. Then press and hold GAIN and ON/STBY buttons together – the latter will start to blink rapidly. VSPE is in firmware update mode now. Follow the instructions provided in the updater application on your Mac/PC.

If you decide to abandon the firmware update procedure (not recommended if the process has already begun), hold the ON/STBY button for 5 seconds.

STATE MEMORY

Internal non-volatile memory will restore all settings after sudden mains power loss. It will also remember last ON/Standby choice and provide power cycle counter and up-time clock (you can access all this information in DAW plugin window).

LOW FREQUENCY BOOST KNOB

LOW FREQUENCY CUT KNOB

LO BOOST

LO CUT

20 30 60 100

HI BOOST CURVE

Hz

ON/STBY

ENGAGE

POWER BUTTON Hold for ON/STAND-BY

ENGAGE BUTTON with TRUE BYPASS

LOW FREQUENCY SELECTOR BUTTONS

BIG FANCY
BETTERMAKER
LOGO

HIGH
FREQUENCY
BOOST
KNOB

LO
CUT

Bettermaker

HI
BOOST
CURVE

HI
BOOST

HI
CUT

20   30   60   100

Hz

3   4   5   6   8   10   12   16   20   28

KHz

HE

BANDWIDTH
KNOB for
HIGH BOOST

HIGH BOOST
FREQUENCY
SELECTOR
BUTTONS

GAIN BUTTON EXPLAINED

In normal mode all five knobs control various sections of the passive filter. When the GAIN button is pressed the HIGH CUT knob changes its function and allows to adjust the output level of the unit within +/- 8dB range.

Press the GAIN button again to return to normal mode.

To set the unit to flat frequency response (all filters set to zero) hold the GAIN button for 2 seconds. All controls on the front panel will blink and the unit will set back to defaults.

HIGH FREQUENCY CUT KNOB

CHECK OUT THIS AWESOME LOGO!

HEAT EXPLAINED

High cut frequency button doubles as HEAT on/off button when GAIN mode is enabled. "5" LED (above the HEAT marking) will lit when function is enabled.

When HEAT is enabled internal gain stage drives vacuum tubes harder to add saturation and color to the sound. Output pad is applied simultaneously to keep overall gain constant.

HIGH CUT FREQUENCY SELECTOR & HEAT BUTTON
More details on the left..

GAIN SET & RESET TO DEFAULTS BUTTON
More details above..

DAW PLUGIN (AU/VST3/AAX)

Bettermaker Valve Stereo Passive Equalizer is delivered with hybrid DAW plugin that allows you to control and recall all settings of the hardware (including HEAT on/off). Additionally provides high quality digital HPF and LPF (works as regular AU/VST3/AAX plugin), spectrum analyzer, presets and session snapshots.

Connection with the hardware unlocks some extra functionality: dual mono operation, audio level metering, quantize (step) mode for all physical knobs and Auto Audition function - currently selected band will be soloed to let you hear the changes.

You can also adjust VSPE filters' gain and frequency by dragging handles on the EQ curve graph.

Please note that dual mono operation is available only when DAW plugin is connected and active.
In standalone mode VSPE will link both channels and disable quantize mode.

HEAT function is always linked, regardless the link mode or channel selected.

MENU BAR

SNAPSHOTS PANEL

MAIN WINDOW with HARDWARE, DSP & HEAT CONTROLS

FILTER CURVE PREVIEW with HANDLES and ANALYZER

SMOOTH RESIZING CORNER
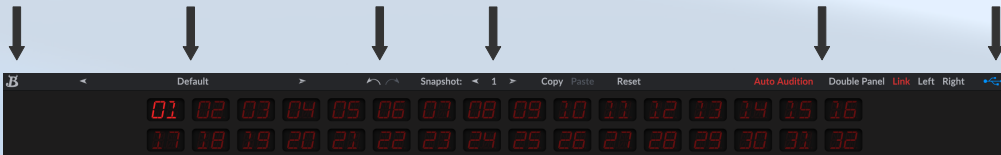
SETTINGS MENU   PRESETS MENU   UNDO REDO   SNAPSHOTS NAVIGATOR   CHANNEL MODE SELECTORS   CONNECTION MENU

SNAPSHOTS

When the **Snapshot** button is pressed, new panel will appear. Press the button again to hide it. You can program up to 32 states of VSPE that can be triggered with DAW's automation. Each preset can contain different set of snapshots. **Copy** and **Paste** buttons are helpful if you want to use one snapshot as a starting point for another one. Use left and right arrows to navigate or press red numbers directly on the snapshot panel.

AUTO AUDITION

This new feature narrows the listening range to the band of the selected filter. Hearing only the immediate vicinity of the frequencies being edited makes adjustments easier.

DOUBLE PANEL and LINK/LEFT/RIGHT

VSPE can work in dual mono or linked (stereo) mode. You can show/hide unused channel with **Double Panel** button. Please note the hardware can work in dual mono mode only if the plugin is connected. Closing the DAW or unplugging the USB cable will switch the unit to stereo (linked) mode. Using digital filters of VSPE plugin in dual mono mode without hardware connected is possible.

CONNECTION MENU (USB icon)

Blinking icon notifies about new hardware units available in your system. Choose one and click CONNECT. Your selection will be stored for the future. Firmware/hardware revision information is also shown here.

PRESETS MENU

Choose from selection of artists' presets or save/load your own settings. Every preset may contain up to 32 automatable snapshots. All presets are stored on your computer's hard drive, not in the unit itself.
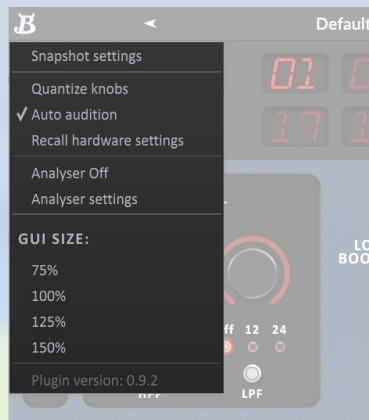
MAIN MENU ITEMS

SNAPSHOT SETTINGS window allows you to select parameters to be controlled by snapshots.

QUANTIZE KNOBS reduces filter adjustment precision to one step per LED. Please note it does not affect already written DAW automation (unless latch/touch/write is used). Quantization is disabled in hardware standalone mode (without plugin connection).

AUTO AUDITION (also available from Menu bar) allows currently selected band to be soloed (isolated) from audio spectrum.

RECALL HARDWARE SETTINGS if you have been using VSPE in standalone mode and need to continue with the DAW plugin.

ANALYZER ON/OFF & SETTINGS lets you enable and configure built-in RTA analyzer. It also shows graphical simulation of filter curve.

Analyzer settings window

ABOUT GUI SIZE

The Menu provides a few standard GUI sizes to choose from. However you can also adjust the size by grabbing bottom right corner of the plugin window (white triangle).

**METERING
AND DIGITAL
FILTERS**

**HARDWARE
CONTROLS**

**HEAT ON/OFF
SWITCH**

ANALOG METERS and DIGITAL HPF/LPF

The input level metering requires the hardware to be connected and engaged.
The 2nd or 4th order digital filters can be used without hardware (just as regular DAW plugin).

HARDWARE CONTROLS..

.. are exact copy of the physical unit layout. GAIN knob has been added to make adjustment via plugin more convenient (no HI CUT/GAIN switch needed here). Double click on any knob to enter the value manually.

HEAT SWITCH

When HEAT is enabled internal gain stage of the VSPE unit drives vacuum tubes harder to add saturation and color to the sound. Output pad is applied simultaneously to keep overall gain constant. You will hear relays click when toggling the switch - this is normal.

ABOUT GRAPHICAL REPRESENTATION OF DIGITAL and ANALOG FILTERS

VSPE plugin can simulate and display the actual shape of the filter curve using mathematical calculations. Apart from the visual feedback, the user can also adjust gains and frequencies of different bands with easy to manipulate on-graph handles represented as dots.
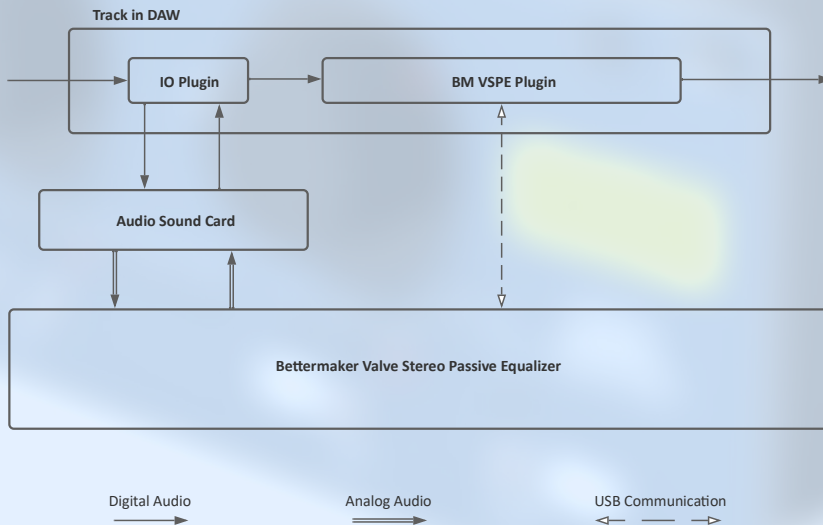
There are four handles for analog filters (LO BOOST, LO CUT, HI BOOST & HI CUT) and two for digital highpass and lowpass filters. Hi Boost Curve can be adjusted with the scrool wheel and mouse pointer over the Hi Boost dot.

When **AUTO AUDITION** function is enabled, grabbing any of the handles will solo corresponding band making the gain and frequency adjustment much easier. Using plugin knobs will trigger the same behavior.

PLUGIN CONNECTION WITH HARDWARE

If you want to use Bettermaker VSPE's full potential, please follow the signal & data flow diagram showed bellow.

The connection with VSPE plugin should be established automatically. Once the hardware locks with the software, USB icon on the menu bar turns blue. In case of multiple VSPE units connected, select correct one from the list.

TECHNICAL SPECIFICATION

Digitally controlled analog Stereo Passive Equalizer with transformer output and vacuum tube drive stage.

Maximum input level: +24 dBu (balanced with 48kΩ input impedance)

Maximum output level: +22 dBu

Output impedance: 120Ω (30Ω with HEAT activated - Bettermaker TT-1 transformer balanced)

Nominal audio level: +4 dBu

Max LF boost: 15 dB (set to 100 Hz)

Max LF cut: 16 dB (set to 100 Hz)

Max HF boost: 18 dB (all frequencies)

Low boost/cut frequencies: 20, 30, 60, 100 Hz

High boost frequencies: 3, 4, 5, 6, 8, 10, 12, 16, 20, 28 kHz

High cut frequencies: 5, 10, 20 kHz

Control Resolution: 101 steps (Lo Boost, Lo Cut, Hi Boost, Bandwidth) & 34 steps (Hi Cut)

Control Resolution in Quantize mode: 17 steps for all controls

Output gain: +/- 8 dB (0.1 dB resolution; 1 dB in Quantize mode)

Input level metering range: -15dBu to +24dBu (bottom yellow dot = +4dBu)

Unit height: 2U

Unit depth: 140 mm

Unit weight without cables and PSU: 2.7kg

AC power consumption: 18W (2W in standby, with included 100-240VAC power adapter)

Shipping weight & dimensions: 3.5kg, 60x30x20 cm

SUPPORTED PLUGIN FORMATS

AAX Native, AU, VST3

PLUGIN MODIFIER KEYS

AU

Fine Control	Shift
Set to default	Alt

VST3

Fine Control	Shift
Set to default	Command (Mac), Ctrl (Win)

AAX

Fine Control	Command (Mac), Ctrl (Win)
Set to default	Alt (Mac), Alt (Win)

SUPPORTED OPERATING SYSTEMS

Mac

macOS 12 down to macOS 10.11

Intel or Apple Silicon architecture

PC

Windows 11 down to Windows 8

x64-compatible CPU

SYSTEM REQUIREMENTS

Display resolution: 1440 × 900px or 1280 × 960px or higher

Memory: 2 GB RAM

Bettermaker™

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instagram.com/addictedtomusicstudios