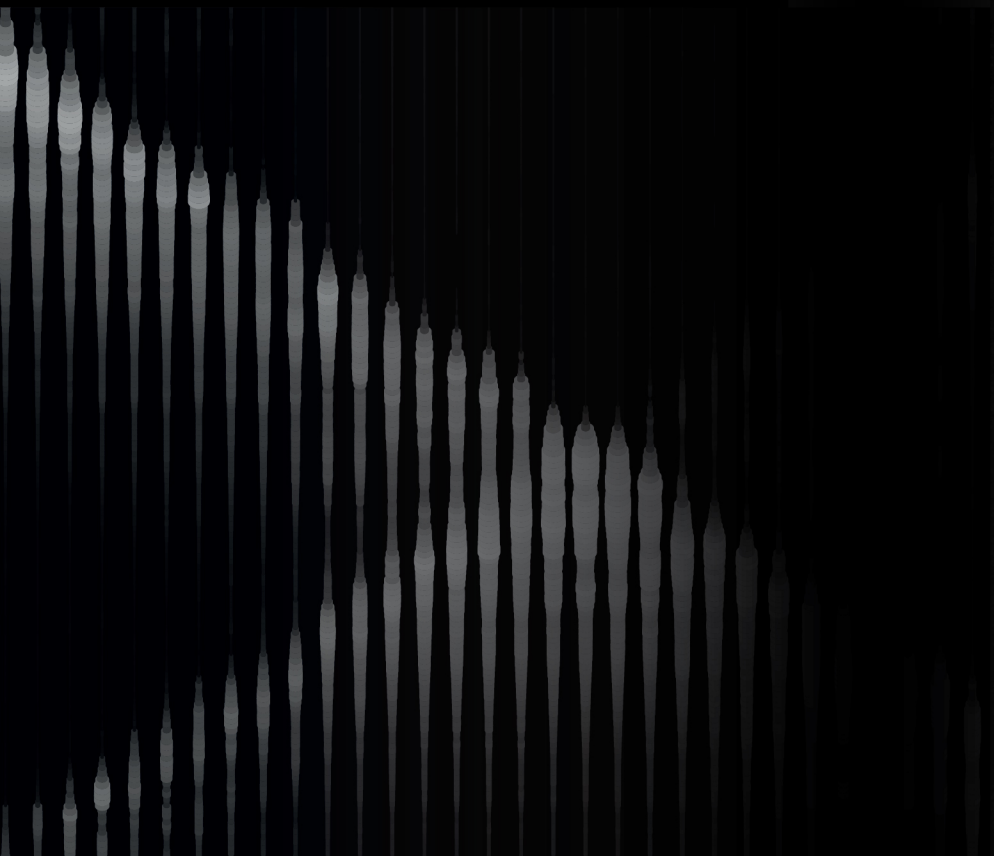
STEAMPIPE

USER MANUAL



STEAMPIPE

The picture above is of the pipe organ found in the Liepaja Holy Trinity Church in Latvia.
It is the largest mechanical pipe organ in the world with 4 manuals, 7,000 pipes and 131 independent voices.

THANK YOU FOR PURCHASING

THE ERICA SYNTHS X 112dB.com STEAMPIPE SYNTHESIZER!

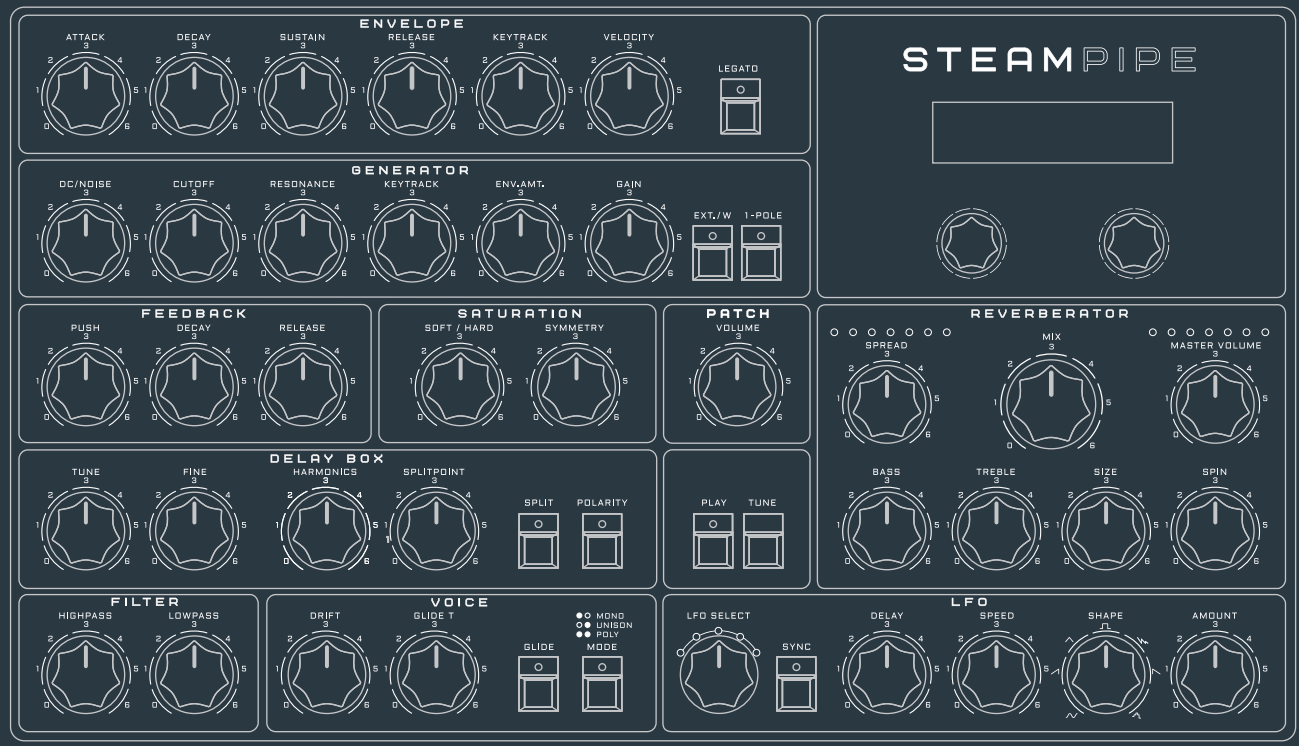
The Steampipe is a true physical modelling synthesizer developed in close collaboration between Erica Synths and the Dutch company 112dB.com.

It is an 8-voice polyphonic synthesizer, but it has no conventional oscillators. Instead, it mimics the way sound is created in wind and string instruments and it is fine-tuned to create a wide range of sounds. The Steampipe is optimized for performance with wind MIDI controllers and it works great with any MIDI keyboard. The overtones the Steampipe produces are very organic and rich. It also comes with great-sounding presets. The Steampipe is quite versatile and allows for nuanced sonic exploration, conjuring sonic imagery ranging from from wisps of cloud to fairground band organs, then to industrial horns of the railroad and finally, to massive, otherworldly ambiences. Due to detailed controls over multiple physical modelling parameters, the Steampipe is capable of generating very organic emulations of real instruments, but it goes well beyond the conventional pitch and dynamic ranges they can produce— imagine how a flute or clarinet would sound in C1 or C7!

FEATURES

STEAMPIPE

- 8-voice polyphony
- Physical modelling engine with 32 adjustable parameters
- 5 assignable LFOs with delay and sync
- Extensive modulation matrix with MIDI controller-specific configurations
- 64 factory presets and 192 user preset memory
- Preset export and import via USB
- DIN5 MIDI Input
- MIDI Thru/Out
- All parameters are MIDI CC controllable
- Stereo line level output
- Headphone output

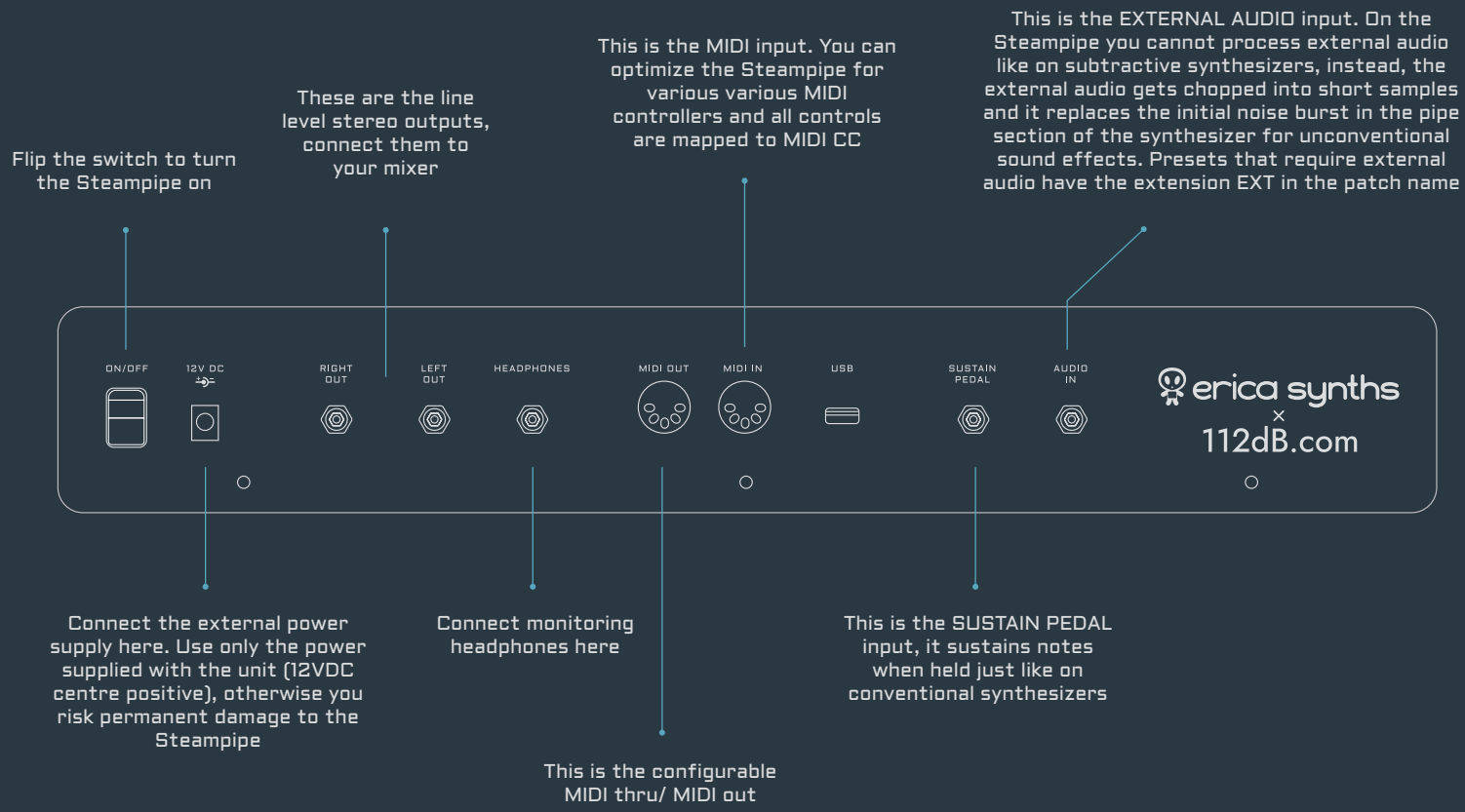


WHAT'S INCLUDED:

- The Steampipe synthesizer
- Universal 12VDC wall wart adapter
- User manual

CONNECTIONS

STEAMPIPE



PHYSICAL MODELLING OF WIND AND STRING INSTRUMENTS

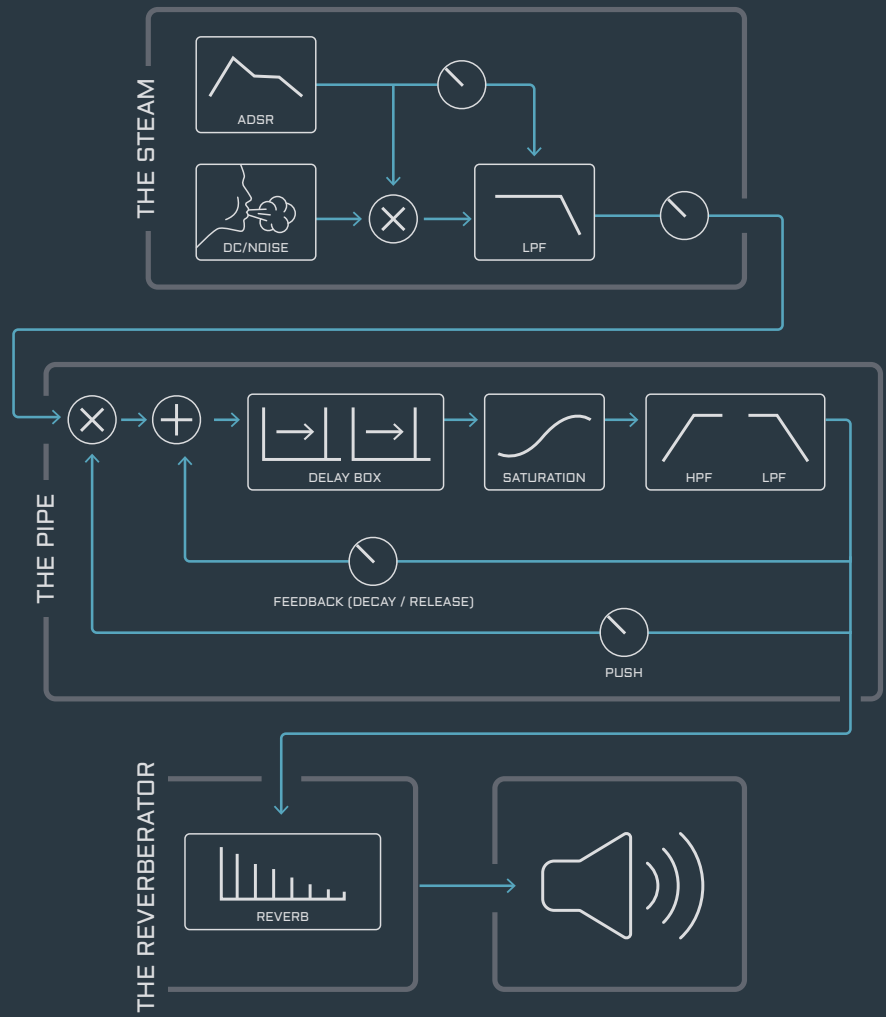
The pipe is essentially a very heavily modified Karplus–Strong algorithm (a tuned delay with a feedback), adapted in such a way that it not only works well for plucked strings, as the algorithm originally was intended for, but can also create an authentic simulations of stroked inharmonic instruments like bells, xylophones and something the Steampipe particularly excels at - wind instruments, such as flutes, clarinets and pipe organs.

An important component in this respect is the push-pull mechanism inserted in the feedback that allows for the pipe to oscillate instead of just resonate to the steam. This forms the foundation needed for wind instruments, and creates the "whistle sound".

A saturator is inserted to ensure the maximum amplitude of the resonances is tamed within limits and the pipe does not explode. The amount of saturation can be modified to change the "harshness" of the sound. The saturator can also be asymmetric to allow for balancing between odd and even harmonics. You can shape the sound of your instrument, so to speak.

A high-pass and low-pass filter are inserted in the feedback to control at which frequencies the pipe will resonate. Because you can also to modulate these filters, it becomes possible to 'overblow'' (jumping a pitch without changing fingering position) the Steampipe, like an actual wind instrument. Together with the option to modulate the gain of the steam generator, which is equivalent to blowing harder, you can quite convincingly simulate the expression of wind instruments. Attach them to the mod wheel of your keyboard, the controls of your wind or MPE controller and you can add vibrato or overblow while you are playing.

Further additions are the ability to split the pipe in two unequal parts and stretch their harmonics. This creates inharmonic frequencies that are good for bells, and percussive instruments such as woodblocks.



INDIVIDUAL MODULES OF THE STEAMPIPE

THE STEAM

Decreases the volume of the steam over time, beginning when the attack reaches the peak level.

When the decay reaches the level set by the sustain parameter, the level remains constant as long as the note is held.

Determines the time it takes for the sound to fade away completely once the note is released.

Scales the envelope times by midi note: the higher the note, the shorter the envelope. Keytrack on 1 means that times will be twice as fast when you play an octave higher.

Scales the output level of the envelope according to velocity. Velocity on 0 means envelope is always full regardless how soft or hard you play a note.

Determines how long it takes for the steam to “fade in”.

When legato is off, the envelope always gets retriggered when playing a note. When legato is on, the envelope does not retrigger when notes are played legato. This only applies to mono and unison voice mode.

Mixes between the DC (pressure of air) and noise component.

The filter is by default two-pole, hitting the 1-pole button will make it 1-pole instead.

Cutoff frequency of the low pass filter on the noise. Values are in midi pitch.

Resonance of the low pass filter (be aware that this doesn’t do anything in one-pole mode).

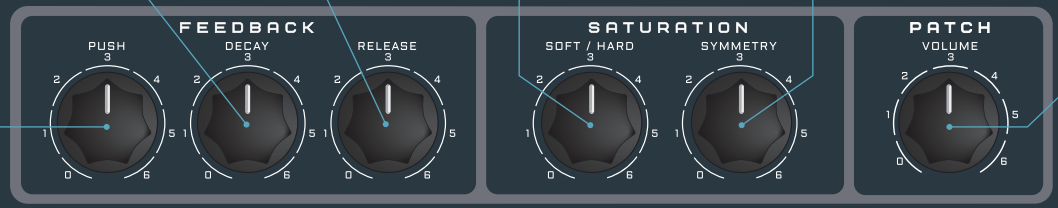
Key tracking of the cut off frequency. Higher notes get a higher cutoff frequency.

The amount of envelope applied to the cutoff frequency.

Output gain of the generator.

When external input is on DC/Noise gets replaced by respectively an envelope followed input signal and the signal itself.

THE PIPE



Pushes or pulls the signal from the generator according to the contents of the pipe (this makes the steampipe oscillate).

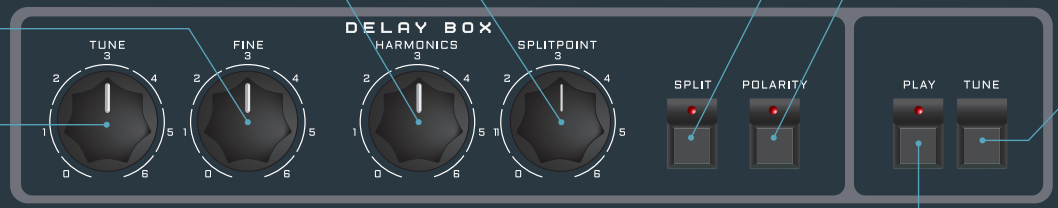
Decay time of the feedback when the note is on. Time is logarithmic time.

Release time of the feedback when the note is off.

Sets the feedback saturation to soft or hard clipping, or something in between.

Symmetry of the saturation. Goes from symmetrical (0) to asymmetrical (1). Symmetrical adds odd harmonics. Asymmetrical adds even harmonics.

The Patch volume control allows for adjusting the volume of the patch before it is routed into the reverberator.



Tunes the delay box in cents (hundredths of semitones). Tune and Fine will be added up for the final result.

Tunes the delay box in semitones. For example: -1 means 1 semitone lower.

Controls the 'stiffness 'of the resonator body, the spread of the harmonics in the delay box.

When split is enabled, split point determines the point where the delay box is split.

This will split the delay box in two diffuser delays, the delay becomes two dimensional which is especially good for bells.

The polarity of the feedback. When polarity is on, feedback creates mainly odd harmonics, when it is off you will get all harmonics.

Tweaking several parameters on the Steampipe will detune it. The TUNE pushbutton allows you to get the Steampipe back in tune. Please refer to the manual below on tuning functionality.

High pass cutoff frequency in midi notes (relative to middle C).

Low pass cutoff frequency in midi notes (relative to middle C).

Slightly detunes all voices.

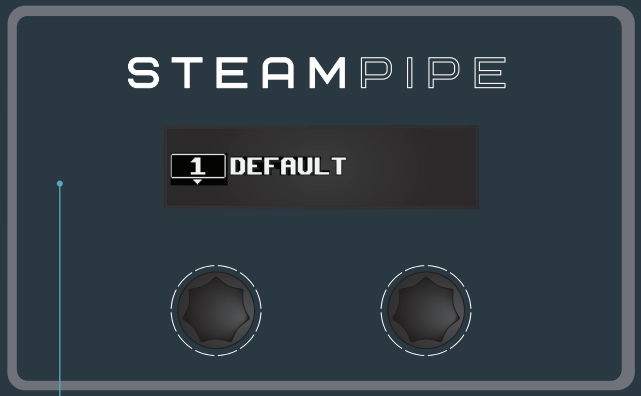
Sets the time it will take to glide from one note to another.

Switches on portamento.

Plays the current patch without a MIDI controller connected.

Voice mode: with polyphonic selected, every voice gets a note. Monophonic is one voice at a time, in unison all voices play the same note.

CONTROL CENTER



The two encoders are for main menu controls and the OLED display provides visual feedback for the various settings.

THE REVERBERATOR

Sets the stereo spread.

Determines the amount of dry/wet signal. 0 is dry, 100 is wet.

Determines the volume of the Steampipe.

Determines the amount of detuning of the reverb. Increasing spin results in a fuller, richer sound.

Determines how much low frequencies there will be in the reverb signal and how fast they will die out.

Determines how much high frequencies will be in the reverb signal and how fast they will die out.

Sets the size of the reverb (the reverberation time). You can set the size of the room, as it were. A size of 0 is comparable to a room with a length of 2.6 meters. A size of 100 is approximately a room with a length of 666 meters.

THE MODULATOR

Selects one of 5 built-in LFOs. The modulation destination will appear on the display.

Sets the time it takes for the LFO to kick in, time is in seconds.

Selects the LFO shape. Shapes morph between each other and you can dial in unconventional in-between shapes.

Synchronizes the LFO to the MIDI clock. When SYNC is on, the SPEED control becomes a clock divider (counterclockwise) or multiplier (clockwise).

Sets the LFO speed.

Sets the amount of the LFO signal sent to the modulation destinations.

THE MAIN SCREEN

As you power on the Steampipe the list of PRESETS will appear.

Rotate the left encoder to navigate through the presets and push it to confirm selection. The highlighted preset number indicates the currently selected preset.
The Steampipe factory presets are developed by Martijn Zwartjes, Andrew Schlesinger, and Ken Flux Pierce.

THE TUNE MENU

The HP and LP compensation knobs compensate for the detuning caused by the filters.
The low pass filter and high pass filter not only have influence over the frequency response but also over the phase characteristics of the tone. Changing the phase however, influences the tuning. In other words: when you change the filter settings, the tuning of your instrument will change. With the HP compensation and LP compensation knobs you can compensate for this effect. When set to ‘full’ , the fundamental frequency will be perfectly in tune again. There's just one problem: when you overblow (that is, use the filter modulation), the second or third harmonic will be out of tune. Getting them both perfectly in tune is impossible. You have to find a compromise. And that’s where the strobe comes in handy. While you turn the mod wheel or another control that you have connected to filter modulation, you can see how much the note will go out of tune when you ‘overblow’. Turn the knobs down a bit until you find a setting that’s good for both the 'normal' and the ‘overdriven’ tone. The strobe will tell you how much the note is off. If adjusting the compensation doesn't do the trick, you can also use the 'fine tune" knob in the Delay Box to change the pitch a little, and/or change the mod setting of the delay box a bit. In order to make tuning easier, you can turn on QUANTIZATION mode by pushing the left encoder.

THE PRESET MENU

If you play a preset and alter settings, you can SAVE it, SAVE AS under different name, RENAME, DELETE, SORT the preset list or UNLOAD preset-specific panel settings. To do so, push the right encoder and select the PRESET menu by pushing the left encoder.

Now, you can push the left encoder and the PRESET management pop-up will appear.

THE PRESET MENU

Rotate the left encoder to make a selection and push it to confirm. If SAVE is selected, the preset is saved (overwritten).
When selecting SAVE AS, the naming menu will appear

Rotate the left encoder to navigate through the symbols and options on the bottom row to create the name of the preset and navigate to OK to confirm. The right encoder allows for navigating through letter slots and inserting spaces. The Steampipe can also generate RANDOM names (that actually make sense) for you. In the same fashion you can RENAME existing presets.

The SORT function allows for re-arranging the presets in the list. Rotate the left encoder to navigate through letters and options on the bottom row to create the name of the preset and navigate to OK to confirm. The right encoder allows for navigating through letter slots and inserting spaces. The Steampipe can also generate RANDOM names (that actually make sense) for you. In the same fashion you can RENAME existing presets.
The UNLOAD feature initiates the panel - it resets all panel controls to their actual positions. It may create complete sonic mess, but it can be useful to start a sound design from scratch.

THE ENGINE MENU

For more advanced sound design there are two sound engine related features that can be engaged or disengaged. These settings are saved with presets. In order to access the menu, push the right encoder. Then rotate the left encoder and push it to make a selection in the menu.

Rotate the left encoder to navigate through the options and rotate the right encoder to alter them.
The first option is the SATURATION SYMMETRY MODE. Where Symmetry mode A is done by asymmetrically wave shaping the signal to add even harmonics, Symmetry Mode B uses phase shifting to achieve the same thing. The signal is phase modulated by itself similar to FM synthesis. Mode B has a different character.
As in FM, the louder the input signal gets, the more sidebands you get, making it very suitable for brass sounds.
The second option is to bypass the reverb. Push the right encoder to return to the main menu.

THE MIDI CONTROLLER SELECTION – MIDI DEVICE MENU

STEAMPIPE

The Steampipe can be optimized for control by various MIDI controllers – MIDI keyboards, MIDI wind controllers, MPE controllers, etc. The first thing to do is to set up the controller of your choice. To do so, push the right encoder under the display and the CONFIGURATION MENU will open. Rotate the left encoder and select the MIDI DEVICE and push the left encoder to confirm. The MIDI device setup screen will open.

There are basic MIDI messages, like pitch, note on and velocity that are hard-wired to the Steampipe controls, but for more expressive performance, there are four more addressable MIDI CC messages (like modulation wheel and assignable potentiometers or touchpads on the keyboard or rotation and tilt movements on wind controllers), labeled as CC SOURCES A, B, C, D that can be assigned to several destinations on the Steampipe. So, the first thing to do is to add MIDI controllers and assign MIDI messages from the MIDI controller to sources A, B, C, D.
In order to add a MIDI controller, push the left encoder and the MIDI controller management popup screen will appear.

Here you can ADD, RENAME, EDIT or DELETE the MIDI controller. In order to add a new MIDI controller, select NEW and the MIDI controller naming screen will appear.

Rotate the left encoder to navigate through letters and options on the bottom row to assemble the name of the controller and select OK to confirm. The right encoder allows for navigating through letter slots and inserting spaces. In the same fashion you can RENAME existing controllers.

In order to edit MIDI CC messages assigned to sources A, B, C and D, select EDIT in the MIDI controller setup menu. Source A becomes active and you can rotate the right encoder to select the MIDI CC message manually (refer to your MIDI controller manual for MIDI mapping) or push the left encoder to initiate MIDI LEARN mode.

THE MIDI CONTROLLER SELECTION – MIDI DEVICE MENU

In MIDI LEARN mode you simply have to move the relevant MIDI control (or rotate/elevate a wind controller) and the Steampipe will automatically detect the MIDI message from the controller and assign it to the relevant source. Once happy, rotate the left encoder to advance to source B, etc.
The same screen provides access to the pitch bend range setting. Rotate the left encoder to activate PITCH BEND selection and rotate the right encoder to set the desired pitch bend range. Once happy with the configuration, push the right encoder and confirm your configuration settings.
Push the right encoder to return to the main menu.

THE MODULATION MAPPING – MIDI MOD MENU

In order to assign sources A, B, C and D to modulation destinations, select the MODULATION menu and push the left encoder to confirm.

Here you will find the MODULATION MATRIX with the list of SOURCES A, B, C, D, DESTINATIONS and modulation DEPTH adjustment. Possible DESTINATIONS are: Generator Amount, Delay Modulation, LPF Modulation, HPF Modulation, Reverb Mix Modulation and LFO1 – LFO5 amount (the modulation is added to the AMOUNT setting on the panel in the LFO section).

Rotate the left encoder to select the destination and rotate the right encoder to select the source. One source can be assigned to multiple destinations. Push the left encoder to toggle between the SOURCE selection and DEPTH adjustment. The DEPTH can be positive or inverted. Once happy, push the right encoder to return to the main menu.
Modulation settings are saved with PRESETS.

THE LFO MENU AND LFO MAPPING

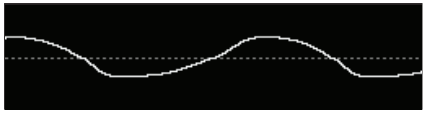
The Steampipe features five versatile and synchronizable LFOs, each with 4 parameters – DELAY (sets the time of the LFO fade in), SPEED, morphing wave SHAPES, and modulation AMOUNT. The LFOs can be assigned to multiple parameters on the Steampipe and settings are saved with the presets. There are two ways to access the LFOs: 1) simply by rotating the LFO selection rotary switch, 2) through the main menu. The LEDs next to the LFO selection switch indicate the LFO speed.

The LFO controls are hands-on, but because each LFO may have different settings and modulation destinations, LFO settings are shown on the display.

Rotate the left encoder to select the modulation destination and push it to confirm. Alternatively, you can simply rotate the destination potentiometer and the LFO will automatically assign it to a selected destination. Each LFO can be assigned to a single destination and it is added to the destination control setting. The MOD bar on the right side of the menu shows the LFO amplitude, set by the AMOUNT control and bias, set by the corresponding destination control.
Push the right encoder to return to the main menu.

THE SCOPE MENU

The built-in oscilloscope allows for monitoring waveforms produced by the Steampipe.



You can adjust the time response of the oscilloscope by rotating the left encoder and the amplitude by rotating the right encoder. Push the right encoder to return to the main menu.

The SETTINGS menu provides access to the configuration settings of the Steampipe. Push the left encoder to access options in the settings menu and rotate it to select the option. Then push the left encoder to confirm the selection. The options are: MIDI (overall MIDI setup), MIDI CC mapping, display settings, preset export/import, backup via USB port and system settings.

MIDI SETUP

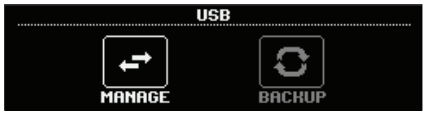
In the MIDI menu you can configure the MIDI setup of the Steampipe. Rotate the left encoder to make a selection and rotate the right encoder to alter the setting.
Here you can:
1. Select the MIDI IN channel on the DIN MIDI connector
2. Select the MIDI IN channel on the USB MIDI connector
3. Initiate the MPE (Multidimensional Polyphonic Expression) mode to play the Steampipe with controllers like the Roger Linn LinnStrument, Haken Continuum, Sensel Morph, the Keith McMillen QuNeo, QuNexus or K-Board Pro, to name a few.
4. Select the source (DIN or USB) of the MIDI CLOCK for LFO synchronization
5. Turn the receiving of MIDI CC messages from the DIN port ON or OFF. This is particularly useful to avoid conflicting messages from the MIDI controller as described in the MIDI DEVICE menu section.
6. Turn the receiving of MIDI CC messages from the USB port ON or OFF.
7. Turn the transmitting of MIDI CC messages via the DIN port ON or OFF. The Steampipe transmits MIDI CC messages as mapped in the CC mapping menu . This feature in particularly useful if you wish to record automations during live recording of the Steampipe into your DAW.
8. Turn the transmitting of MIDI CC messages from the USB port ON or OFF.

Every parameter on the Steampipe can be controlled via MIDI CC messages. The Steampipe comes with factory preset mapping, but you can personalize mapping in the MIDI CC MAP menu. Rotate the left encoder to select the parameter and rotate the right encoder to alter the MIDI CC number. The Steampipe will also output the mapped CC's via MIDI OUT.

THE DISPLAY SETTINGS MENU

In the DISPLAY hands-on, you can configure the appearance of the OLED display, as well as engage or disengage various features related to visual feedback on the OLED as you use the instrument. Rotate the left encoder to make a selection and rotate the right encoder to alter the setting.
Here you can:
1. Adjust the brightness of the OLED.
2. Set a display dimming time in order to prolong the lifespan of the OLED.
3. Set a screensaver appearance time in order to prolong the lifespan of the OLED display.
4. Engage or disengage the LFO LEDs. When set to OFF, only one LED is on, and it indicates which LFO is currently selected. When set to ON, the LEDs give visual feedback of all active LFOs in action – they blink according to the frequency and amount settings.
5. Engage or disengage visual feedback of voice activity– active voices will appear on the bottom of the main screen as small pipes.
6. Configure the response of the potentiometers when presets are changed. We have installed potentiometers rather than encoders for better tactile feedback while playing the instrument. When changing a preset, the potentiometers will be in different positions relative to those saved with the other presets. With POT CATCH set to ON, you need to rotate the relevant potentiometer through the previously saved position before it starts altering the parameter, thus providing a continuous change in sound. The POT CATCH POP setting is the same as the ON setting, with the addition of a pop-up of the saved position of the potentiometer appearing on the display once it is moved, giving visual feedback as you rotate. With POT CATCH set to OFF, as soon as a potentiometer is rotated, it will immediately override the saved position resulting in instant changes in sound. This provides more hands-on control over the parameters, but it may alter the sound radically.
7. Engage or disengage the MOD POPUP. When you modulate or manually tweak parameters available in the MIDI MOD destinations, a pop-up will appear and you can adjust the modulation amount using the right encoder.

USB MENU – MEMORY MANAGEMENT



In USB mode, you can manage the memory of the Steampipe. Here you can upload/download individual presets and backup/reload all presets on the Steampipe as a single file on your computer. Connect the Steampipe to your PC or Mac and select USB mode. The Steampipe will appear on your computer as an external HDD and you can simply drag and drop presets to or from the Steampipe. The same goes for the backup file.
Once done, make sure to press the right encoder to exit this mode.

THE SYSTEM MENU

The SYSTEM screen shows the firmware version, memory usage and CPU usage. Here you can also perform a factory reset. In order to perform the factory reset, rotate the left encoder and as the popup appears, rotate and push the left encoder to confirm the reset.
Push the right encoder to return to the main menu.

FIRMWARE UPDATE

STEAMPIPE

1. Download the latest firmware (FW) file (.uf2).
2. Turn the Steampipe off, connect it to your PC or Mac with a USB cable.
3. Push and hold both encoders and turn the Steampipe on. It will appear as an external HDD on your computer.
4. Drag and drop the FW file (.uf2) in the Steampipe drive and it will update the FW – the display will indicate upload progress.
5. Restart the Steampipe and check the firmware version in the SYSTEM menu.

SAFETY INSTRUCTIONS

Please follow the instructions for the use of the Erica Synths X 112.dB.com Steampipe unit below, because only this will guarantee proper operation of the instrument and ensure warranty coverage from Erica Synths.

Use the Steampipe module exclusively with the power supply unit (PSU) supplied with the system. Powering it with other PSU units may cause permanent damage to the device.

Water is lethal for most electric devices unless they have been rendered waterproof. The Steampipe is NOT intended for use in a humid or wet environment. No liquids or other conducting substances should be allowed into the unit. Should this happen, the unit should be disconnected from mains power immediately, dried, examined and cleaned by a qualified technician.

Do not expose the instrument to temperatures above +50° C or below -20° C. If you have transported the instrument in extremely low temperatures, leave it at room temperature for an hour before plugging it in.

Transport the instrument carefully. Never let it drop or fall over. The Warranty does not apply to instruments with visual damage.

The Steampipe must be shipped in the original packaging only. Any instrument shipped to us for return, exchange and/or warranty repair must be in its original packaging. All other deliveries will be rejected and returned to you. Ensure that you keep the original packaging and technical documentation.

DISPOSAL

This device complies with EU guidelines and is manufactured and confront RoHS without the use of lead, mercury, cadmium or chrome. Nevertheless, this device is special waste and disposal in household waste is not recommended.

User manual by Girts Ozolins@Erica Synths.
Design by Ineta Briede@Black8 & Maija Vitola@Black8.

The specifications are subject to change without notice. If you have any questions, feel free to contact us via SUPPORT section on www.ericasynths.lv

You will find the Erica Synths terms of warranty at www.ericasynths.lv

Items for return, exchange and/or warranty repair should be sent us according to the guidelines on SUPPORT section on www.ericasynths.lv

User Manual V1, November, 2024

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