SpatStruments MiniTools Collection



This set of small plugins, often dedicated to a single function, is mainly intended to complete the SpatStruments series. It brings a modular dimension and thus constitutes a complete ecosystem for sound-spatial creation up to 24 points.
These specialized tools often come from functions already present in SpatStruments, but whose separate presentation may be lighter or more flexible. A number are 24-channel versions of existing Acousmodules, and a few are entirely original.
All of them are to be placed on a multichannel bus and will give the best of themselves in Reaper...
Note that Nuendo and Studio One do not support plugins with more than 24 inputs/outputs (they appear as mono).

They are currently available in VST3 format for Windows and AudioUnits for MacOS. Some may work fine on Linux with Yabridge. Compatibilities for Mac and Linux are indicated for each plugin in parentheses (M, L).

Spatialization



MiniLink 32 : selects one input from 32 and sends it to one output from 24. It can be useful for auditioning the content of a multiphonic source channel by channel and of course to replace a panner in direct mode. Unselected channels are blocked.
(M)

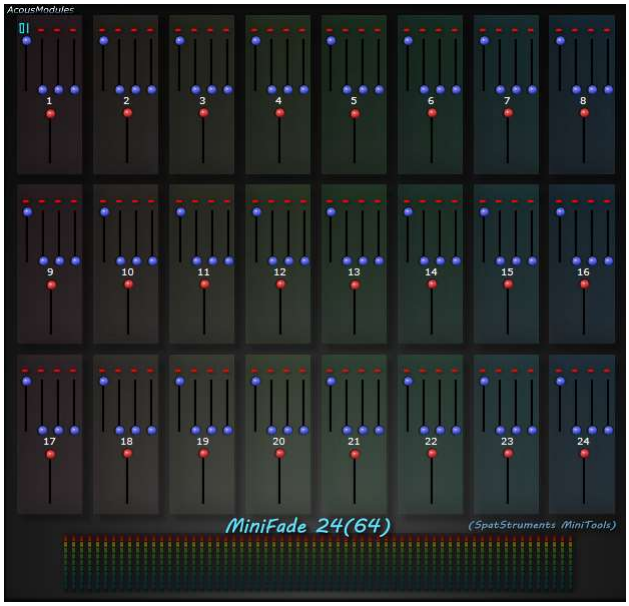


MiniKeys 24 : uses MIDI Notes to trigger envelopes that control VCAs connected to different outputs. It's very simple but very effective.
- Notes: select the MIDI Note for each output channel by dragging the mouse over the name
- Time X: control of the envelope duration by a MIDI controller
- ADSR: amplitude envelope, polyphonic
- VAmp: modulation of the envelope amplitude by velocity
- VTime: modulation of envelope durations by velocity
- Octave: offset of the display of incoming notes

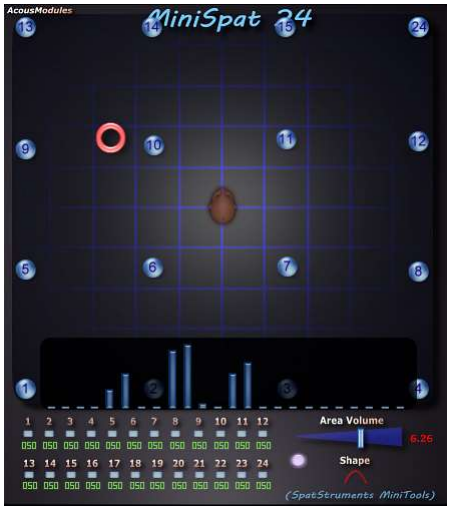
Arpeggiator:
- Trans: transposition
- Rate: speed, is NOT tempo based
- Gate: duration of note emission
- Order: Up/Down/UpDown/DownUp/Random
- Hold: holds notes when keys are released

Input:
- Mono: Input channel 1 is sent to all outputs
- Multi: input and output channels correspond directly. For example if the input is octaphonic, only the first 8 outputs will work.

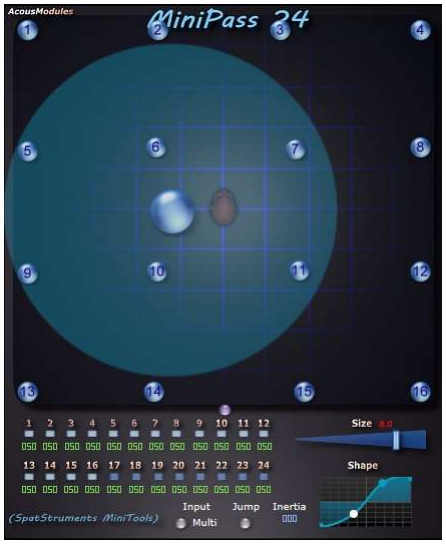
(L)



MiniFade 24 : sends the 24 inputs to, for each, 4 output combinations among 64, with volume controls. It can be used as a "panner", that is to say to place a mono, stereo or multiphonic sound in a space, with less ease because it is not graphic, but with many more nuances and without the constraints and limits introduced. by graphic representations.
In practice, apart from simple cases, it is especially interesting for carrying out adaptations of spatial formats... when we wish to finely control the process and we know how to obtain it.
Note: the display of volume values is currently missing.
(M, L)



MiniSpat 24 : mono input dynamically sent to up to 24 outputs.
It can be used as a 2D representation panner, with the advantages and disadvantages of Distance Based Amplitude Control. If you really need a "simple" panner and if you use standard cinema spatial formats, it is better to use the one that comes with the software.
On the other hand, this will allow you to easily obtain less obvious but very useful things like:
- buttons numbered 1 to 24: activates and displays the corresponding output channel
- numerical values: fine adjustment of the area for each output
- Area Volume: global adjustment of the area of influence for all outputs
- Shape: profile of the area of influence, from very gradual to very steep
- Unnamed button: displays the bars representing the amplitude of the signal on each output
(M)



MiniPass 24 : Unlike a "panner" which sends the content of one or more inputs to outputs, the MiniPass lets more or less what reaches its inputs pass to its outputs, depending on the position and size of a disk. It does not make any changes to the channel assignments and only acts on the amplitudes.
- buttons numbered 1 to 24: activates and displays the corresponding output channel
- digital values: fine adjustment of the amplitude control area for each output
- Size: extent of the passage disk
- Shape: amplitude profile of the disc
- Input: Mono = the first input channel is assigned to all outputs; Multi = each input is directly connected to the corresponding output
- Jump: the disk position jumps towards the mouse click, it must be deactivated to be able to edit the positions of the output points
- Inertia: disk movement delay relative to the mouse cursor
(M)



MiniScale 32 : channel compactor/distributor.
Its use with SpatStruments mainly consists of reducing the 32 channels of the "raw" spatial format that some can produce to a smaller number (8, 16 or 24 for example) which can then be spatialized. We can also of course use it for more creative uses...
It only changes the channel assignments and does not modify the amplitudes.
- Shift: global shift of channels from 1 to 32

- Scale: progressive shift of values from channel 1 to channel 32
- Curve: the curvature of the progressive offset
- Scatter: random shift, the small button generates new values
(M)



MiniLine 32 : a bit like the MiniScale it allows the distribution of one sound or a multiphonic space towards another, but instead of operating in a discrete manner the amplitudes of the incoming channels are interpolated on the outgoing channels.
We can consider it as a "1D" spatializer which does not take into account the real spatial arrangement of the points.
- clickable red numbers: activation and display of entry points, up to 18
- Shape: shape of the amplitude control extent area around each output point
- Size: extent of amplitude control around each output point
- Scale: linear distribution of the 18 entry points
- Shift: global shift of 18 points
- Curve: linear or progressive distribution of points
- Chaos: random distribution
(M)

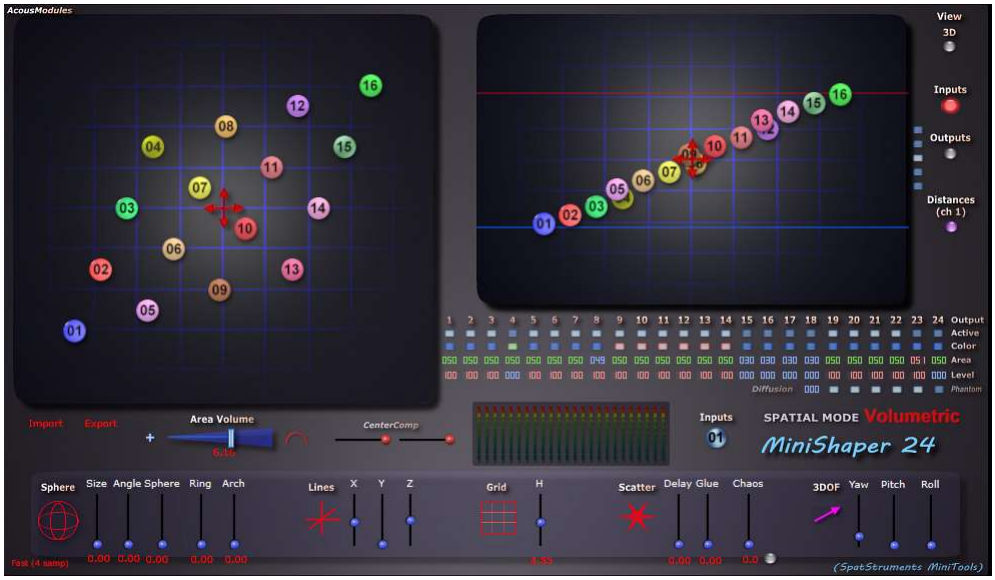


MiniPatt 24 : an attempt to use the step sequencer principle to control the distribution of 1 to 8 inputs to 1 to 24 outputs. Spatial processing is done with interpolation of the amplitudes and does not maintain a constant amplitude.
- Load/Save: save and recall a pattern file
- button: selection of the number of steps, from 1 to 32
- Clock / Steps selector: in Clock mode the progress is carried out according to the Rate speed
- button: in Steps mode allows you to advance to the next step
- Locked/Unlocked: view lock
- Reset: resetting values to one line
- Randomize: random generation of values
- round selector: control amplitude, the indication from 1 to 24 is only relevant for the Shift control

- selection of the controlled parameter...
- Rate: speed of scrolling Pattern steps in Clock mode, the speed is the same for both
- Disturb: speed fluctuation
- clickable red numbers: activation of the 8 inputs
- Shape: shape of the amplitude control extent area around each output point
- Size: extent of amplitude control around each output point
- Scale: linear distribution of the 8 entry points
- Shift: global shift of 8 points
- Curve: linear or progressive distribution of points
- Chaos: random distribution

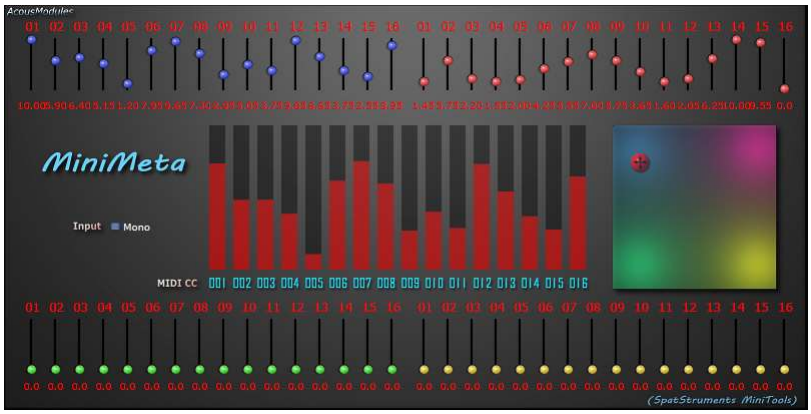


MiniMove 24 : animates the spatial mass with a multiphonic sound by cycling its channels.
- Range: the number of inputs/outputs, always starts with the first
- Rate: cycle speed
- Shape: form of evolution of the cycle, the “sawtooth” allows the impression of a continuous rotation of the channels
- Steps: quantification of movement, generates “jumps” rather than continuous movement
(M)



MiniShaper : this is the section that is present in most SpatStruments. It allows you to format an input that can include 1 to 32 channels in a space of 1 to 24 channels.
Exits :
- row of numbered buttons Active: activates and displays the corresponding input channels
- Color row: assigns a Green/Blue/Red color to each point
- Area row: fine adjustment of the extent of amplitude control per channel
- Level row: output level in percentage
- Phantom: transforms outputs 19 to 24 into phantom sources, in particular to compensate for the absence of loudspeaker points inside the space in periphonic formats. This beta function is currently not very practical...

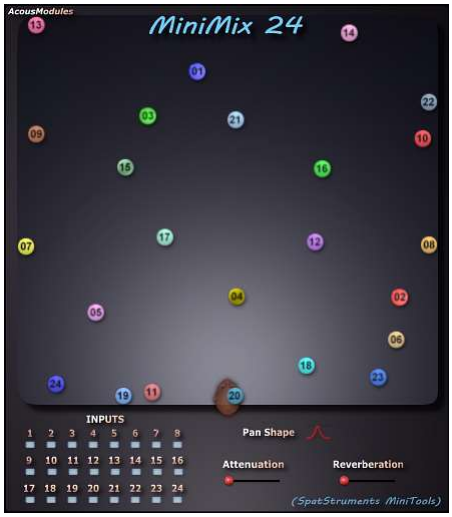
- Import / Export: load/save a spatial configuration file in *.am24 format compatible with other SpatStruments. It includes: the positions of the points in XYZ and their activation, the state of the 5 rows of numbered parameters, the Volume and the shape of the Area, the Center Compensation settings, and the Periphonic/Volumetric choice.
- Area Volume: hearing adjustment
- AreaShape: the profile of all areas, from very gradual to very steep
- Center Comp: simple compensation for the absence of loudspeaker points inside the space in periphonic formats. The first slider determines its extension and the second its amplitude. This is an empirical setting that has some flaws but is much simpler to use and generally more effective than "Phantom" points.
- Inputs: distributed the chosen value over the 16 formatted points
- Spatial Mode: Periphonic is a 2D representation on the left (top) view that can be applied to most formats where the speaker points are located around the listeners, such as cinema formats and domes. It is of course also suitable for all surfaces. Volumetric should be reserved for truly 3D layouts, or for processing phantom masses in periphonic formats. Its use in this case is not always simple and requires the use of "Phantom" points and/or compensation (for the absence) of the center.
- Sphere: distribution of points according to a pseudo hollow sphere of type 4 / 8 / 4
- Lines: distribution of points along a line that can be oriented along the 3 axes
- Grid: distribution of points according to a 4 x 4 point grid, only horizontal
- Scatter: random distribution
- 3DOF: shape orientation according to the Yaw/Pitch/Roll principle
(M)



MiniMeta : controlling the amplitude of 16 audio channels AND sending 16 MIDI controller messages.
- numbered sliders: adjusts the amplitude value for each channel and for each of the four combinations, represented by four colors
- Input: Mono = the first input channel is assigned to all channels; Multi = each input is connected to the corresponding channel/output
- surface: the movement of the red ball determines the interpolation between the four series of settings, the positions in the corners only generate the values of the corresponding configuration
- MIDI CC: sends MIDI Control Change messages to the chosen numbers
(M audio only)



MiniMorph 1624 : spatial morphing between four free input configurations of up to 16 channels in 2D or periphonic space of up to 24 channels.
For the description of the output parameters please refer to that of the MiniShaper.
- Inputs: selection and display of input channels, affects the four configurations
- A/B/C/D: displays the input configurations and allows the positioning of points on the view
- Morph: moving the red ball morphs between the four configurations, arranged as indicated by the colors
- Dots: displays the result of the morphing between the four configurations
- Outputs: displays the points that allow you to configure the output space
(M)



MiniMix 24 : 24 input mixer to stereo. Each entry is represented by a numbered dot whose position in X determines the panoramic position, and the position in Y the simulation of distance.
It can be used for stereophonic mixing but also to "downscale" a multiphonic production in an intelligent, or at least human, way...
- Inputs: activates and displays the 24 input channels
- Pan Shape: "panning law" to be adjusted by ear
- Attenuation: percentage of attenuation of amplitude and high frequencies when the source is "at the bottom"
- Reverberation: the amount of (light) reverberation when the source is "at the bottom"



MiniBinoct : conversion of an octaphonic input arranged in a centered circle to a binaural output. HRTF processing is carried out by convolution with an impulse response file. Five files are currently provided, two without ambiance (Kemar and KU100) and three Rooms ().
Assigning the incoming channels to the 8 fixed positions is done by dragging the mouse pointer over the numbers.
It is possible to largely influence spatiality by playing on:
- Area Volume: diffusion around entry points
- Shape: the profile of this broadcast
- Separation: allows you to tighten the points towards the center
- HRTF File: choice of IR HRTF file in wav format, only the files provided on the SpatStruments page are formatted for these plugins (choose "Circle")
- Level: adjustment of the IR level and therefore the output level

Effects



MiniRev 24 : multichannel reverb in discrete channels. Unlike most multiphonic reverbs, there is no diffusion of the reverberated signal between channels in order to preserve the definition of the initial spatial mass.
- Duration: length of the reverb in seconds, with multiplier settings to obtain very long durations
- HiFreq: attenuation of high frequencies in Damp mode
- Damp: intensity of attenuation of high frequencies
- Mix: this is in fact a Send, it does not cut the current reverb tails when lowered



MiniDeco 24 : multi-channel delay that operates by linear or random progressive time shift. Input can be either mono or 24 channels. For sounds with a number of channels between these two values, the channels not present are simply not processed.

- Input: Mono = the first input channel is assigned to all outputs; Multi = each input is directly connected to the corresponding output
- Shift: shifts all delay values, produces an initial delay of the entire signal
- Line: progressive shift of delay values depending on the channel number
- Acceleration: acceleration/slowing down of progressive delays
- Chaos: random values, fine tuning if the x10 button is not applied
- Feedback: reinjection of the signal, pay attention to the maximum values, there is no limiter...

(M, L)



MiniRez 32 :

- Inputs: 1 to 32, automatically (but not necessarily equally) distributed across the 32 processing channels
- Base Freq: lowest frequency of the first resonator
- Line: progressive shift of resonant frequencies depending on the channel number
- Progression: exponential to logarithmic
- Chaos: random frequency shift
- Agitation: random animation of random values...
- Feedback: reinforces the resonance effect, almost going as far as self-oscillation
- Damp: damping
- Gain: output level
- Direct: mixing level at the output of the unprocessed incoming signal
- LoCut / HiCut: activation of low-cut and high-cut protection filters

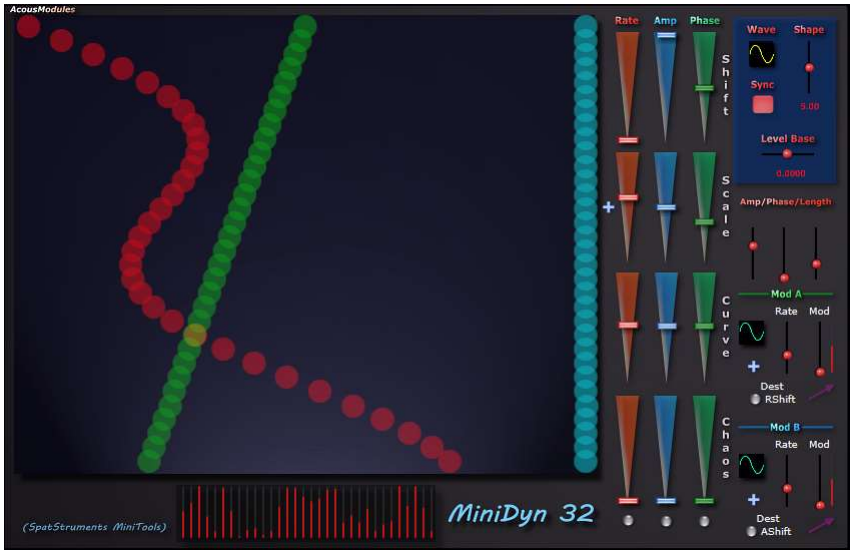
(M)



MiniFreeze 24 : spectral gel by FFT.
Processing operates on each channel independently. The frequency view displays the mix of all selected channels.
- FFT size: low values produce a more synthetic sound, high values bring you closer to "natural" looping
- Freeze button! :...
- buttons numbered 1 to 24: activation of the corresponding channel



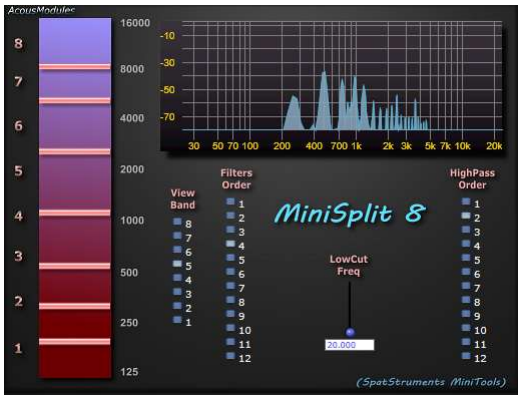
MiniPitch 32 : pitch shift of 32 processing lines, over more or less one octave. The input can have from 1 to 32 channels, these being distributed approximately equally across the 32 processing lines. The 32 outputs can then be spatialized or simply compressed onto fewer channels with the MiniScale 32.
- Inputs: 1 to 32, automatically (but not necessarily equally) distributed across the 32 processing channels
- Shift: global shift of values, from - 1 octave to + 1 octave
- Scale: progressive shift of values from channel 1 to channel 32, positive or negative
- Curve: the curvature of the progressive offset
- Scatter: random shift, the small button generates new values
(M)



MiniDyn 32 : amplitude modulation on 32 processing lines. It is carried out by 32 LFOs with variable waveforms, which can be desynchronized in speed, amplitude and phase.

- Shift: global shift of values
- Scale: progressive shift of values from channel 1 to channel 32, positive or negative
- Curve: the curvature of the progressive offset
- Scatter: random shift, the small button generates new values
- Wave: waveform of the LFOs, determines the shape of the amplitude variations
- Shape: deformation of the waveform, from narrower to wider
- Sync: resynchronization of the 32 LFOs
- Level Base: attenuation/amplification of the overall gain, ATTENTION
- Mod A/B: Modulation LFOs to animate Rate, Amplitude and Phase parameters

(M)



MiniSplit 8 : Spectral separation from mono input to 8 bands/outputs. It is based on crossover filters that can use very high slopes, supplemented with High Pass filters which make it possible to reinforce the separation.

Depending on the settings, the process is not transparent, that is to say that the addition of the 8 outputs is not equivalent to the input.

- bands: (approximate) adjustment of the crossover frequency between the indicated terminals
- Filters Order: from 1 to 12, consider that an order value is roughly equivalent to 6dB/octave
- HighPass Order: same
- LowCut Frequency: additional low-cut filter for the first band

(M)



MiniRoom 24 : applies delays per channel based on the graphical arrangement of points in 2D space.
It can be used as an alternative to WFS if the distances from the broadcasting device are precisely reported... which is not really of interest in production.
On the other hand, it allows you to play on the extreme properties of the process by coupling it with low-pass filtering and Hall-type reverberation.
Moving the head recalculates all delays simultaneously, leading to pitch effects.
- Input: Mono = the first input channel is assigned to all outputs; Multi = each input is directly connected to the corresponding output
- Absorption: low-pass filtering is associated with delays to reinforce spatiality
- Reflections: more or less significant repetition of delays
- Center: reference point for absorption and reverberation effects, it is logically placed in the center of the space but can be located anywhere to create interesting lateralities
- Curve: absorption attenuation curve
- horizontal arrow: converging or diverging delays in relation to the head
- vertical arrow: converging or diverging attenuations relative to the head
- Size: the scale of the graphic representation, multiplied by 3.4 gives the duration of the delay in ms
- Inertia: inertia during movements, allows you to obtain progressive pitch variations
- Time: basic duration of the reverb
- Damp: attenuation of high frequencies
- Mix: reverb send level per channel



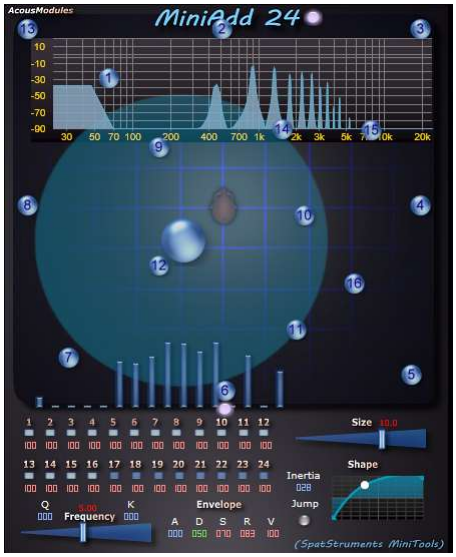
MiniVol 24 : simple but useful volume adjustment per channel + mute + overall volume.
(M)

Instruments



MiniSamp 24 : multiphonic sampler processing files with up to 24 channels. It has a multi-mode filter, two envelopes and an LFO, and a full modulation section, including Polyphonic Pressure.
Sample
- Rec: one press starts recording the input stream (up to 24 channels), another press stops it. During recording the duration display is displayed. There is no limit in principle to the recording duration but it is strongly recommended not to exceed one minute.
- Loop: activates looping during Notes ON or over the entire duration of the sound
- Alt: activates alternate looping
- Xfade: fade loop points in forward mode
- Pitch: pitch variation over +/- 5 octaves
- KBD: pitch control based on Notes messages received, from 0 to 1 tone
- Bend: pitch bend value up to +/- 12 semitones
- Start: starting point for reading
- LoopS: starting point of the loop
- LoopE: end point of the loop
- Velo Start / LFO Start / Velo Pitch / LFO LoopS / LFOLoopP: modulation of the start point and loop points by the velocity and the LFO
- FILE / REC: selects the loaded file or recorded stream
- blue folder: loads a wav file with up to 24 channels (any higher channels are ignored)
Voice: the number of polyphony channels
Rows of numbered buttons: activates recording and playback of corresponding channels
Global Mod: selection of the modulation source for the parameter indicated by an arrow.
RND: generates random values for the specified parameters.
Filter
- Direct: activates the filter section
- curve: Low Pass, High Pass, Band Pass, Notch filtering mode
- 12/24 dB octave switching
- Freq: cutoff frequency, between approximately 20 and 15 kHz
- Res: resonance, does not go as far as self-oscillation
- Key: control of the cutoff frequency according to the Note
- Vel: control of the cutoff frequency depending on the velocity
Amplitude
- ADSR: amplitude envelope
- Key: modification of the duration of the envelope depending on the Note
- L: base level of the envelope, set it to "0" for total control by velocity or pressure
- Vel: amplitude control by velocity

- Volume: responds by default to CC MIDI 07
Random: the parameters indicated are varied randomly
Poly Mod: modulation of pitch, cutoff frequency and amplitude by polyphonic pressure
(M)



MiniAdd 24 : additive synthesis with 24 harmonics, the intensity of which is adjusted according to the distribution of points in a 2D graphic space. These points correspond to direct outputs from the plugin, and their position may possibly be linked to real locations, but it will surely be more interesting to format them later.
- buttons numbered 1 to 24: activates both the harmonic and the corresponding output
- Size: extent of amplitude control zone
- Shape: amplitude control profile
- Frequency: frequency of the oscillator
- Q: quantification of frequency variations
- K: frequency modulation based on MIDI Notes
- ADSRV: volume envelope
- Inertia: slowing down of value changes when moving
- Jump: the disk position jumps towards the mouse click, it must be deactivated to be able to edit the positions of the output points

Utilities



MiniRoute 24 : sending patch 32 x 32. Import and export of configurations in a format compatible with the SpatStrument T24.

(M)



MiniPatch 32 : 32 x 32 wired patch, all inputs/outputs are cumulative, the amplitudes are added.
(M)



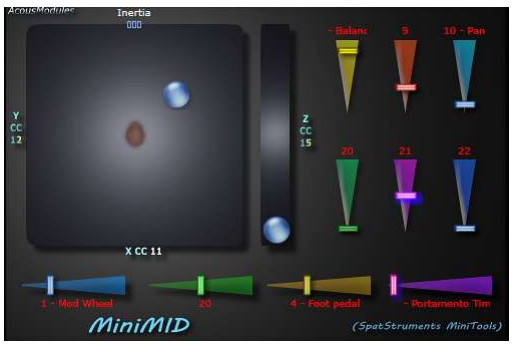
MiniTest 24 : generation of pink noise or one sine per channel. The -12 dB Peak value for pink noise is equivalent to -20 dB RMS typically used for calibration.
- x10: multiplies the sine frequency by 10
(M)



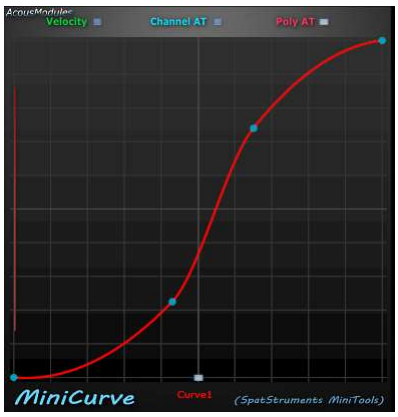
MiniView 24 : visualization of amplitude peaks per channel according to their spatial arrangement. It uses the equivalent section of SpatStrument T24 but does not allow editing of positions: import an existing *.amd2 file.
(M)

MIDI

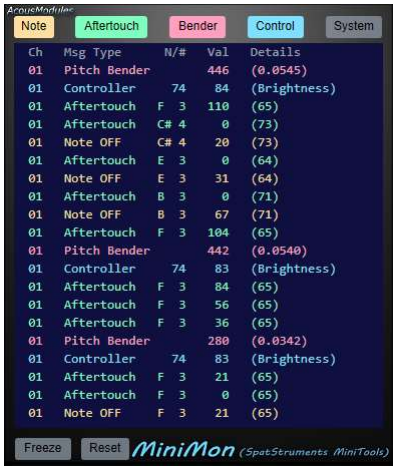
<u>Please note that MIDI output may not be supported by some VST3 hosts.</u>



MiniMID : Control Change message generator.
It can be used to send messages to a MIDI Learn in the absence of a physical controller. In Reaper, it can be placed on audio objects in order to be automated and send these controls to a spatialization plugin (or other) placed on the corresponding track.



MiniCurve : allows you to simultaneously adjust the response curves of Velocity, Channel Pressure and Polyphonic Pressure messages.
(L)



MiniMon : simple MIDI event monitor, entirely based on Sasha's module.
(M)



MiniGest : An important part of the SpatStrument GR24, the Gesturizer and Gesture Recorder is available to play with other plugins that can respond to two-dimensional gestures.
- REC: records in real time the movements made in the playing area, press once to start, a second time to stop
- PLAY: replays the recorded gestures
- Start / End: definition of the start and end points based on the visualization of the curves corresponding to the two axes of the gesture. If the end point is located before the start point the sequence is retrograde.
- Speed: speed of movement of the gesture
- Xfade: fade loop points in linear mode
- Alt: looping in alternating mode
- Shift: shift in X and Y of the values sent
- Scale: shrinking or dilating values
- red horizontal cursors: selection of the MIDI message that is sent for the X and Y axes
(M)