

advanced SID chip emulation / MBSID v2 based sound engine
6x LFO / 8x MODPATH / 2x ENV / 4x WAVESEQ / 3x ARP / 24x14 trigger matrix
phybus instrument clusters / UI cooperation / 12x poly chain option / MIDI option



zetaSID

expandable modular
SID synthesizer voice

USER MANUAL

version 1.4d 2026-02-26

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midiphy

advanced by design

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1. Welcome to zetaSID!

zetaSID is a small but powerful 4HP synthesizer voice that goes above and beyond classic SID sounds. Choose from an extensive selection of built-in patches or edit a voice with subtle to wild parameterisation and modulation.

If mono voices aren't enough, extend zetaSID with phybus: a behind-the-scenes digital network that links and controls multiple modules. Up to twelve zetaSIDs can comprise a phybus instrument cluster for six stereo voices of polyphony.

Interact with zetaSID using a CV/gate interface, a high-contrast OLED display along with other high-quality hardware elements. Go beyond standard CV/gate control of zetaSID by connecting nexusMIDI or other expanders (available separately) into a phybus network. zetaSID also supports ASID compatible SID-file playback over MIDI.



2. Specifications

- Width: 4HP
- Case depth required: 30mm (with cable)
- High-quality milled aluminium frontpanel (no PCB material)
- Power connector: standard eurorack +/-12V 10-pin IDC
- Power requirements:
 - +12V: 120mA
 - -12V: 15mA
 - 5V: 0mA/not required
- Storage (optional): µSD card 10/A1 or faster; FAT32 format
- Maximum instrument cluster size: 12 zetaSID units (6 stereo voices)
- Physical inputs (for classic patching):
 - CV input: -5V to +5V or 0 to 10V (configurable)
 - Gate/trigger input: nominal +5V gate/trigger standard
- Physical outputs (for classic patching):
 - Audio output (eurorack level audio)
- Phybus input sockets (for virtual patching):
 - MIDI: MIDI In 1, 2
 - Gate: Note Gate
 - Trigger: Drum Trigger 1, 2, 3, 4
 - CV: Note Pitch, LFO1 depth, Filter cutoff
- Phybus output sockets (for virtual patching):
 - MIDI: MIDI Out
- Maximum phybus network size: 16 modules
- Maximum total phybus cable length: 150 centimeters

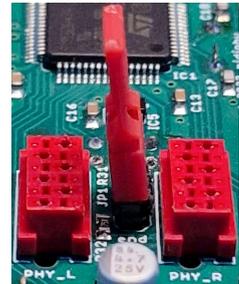
3. Features

- Advanced SID lead engine: sculpt three oscillators with a plethora of filter options, LFOs, modulators, envelopes, an extensive trigger matrix and more
- Access up to 16 lo-fi SID drum sounds in a single drum engine patch
- Noise-free SID sound chip emulation
- Stereo sound engine design: chain two zetaSIDs linked via phybus for true stereo voicing
- Stereo voice polychaining: link up to twelve zetaSID modules in a phybus network for six stereo voices
- Unison mode: link and detune multiple zetaSIDs to create fat sounds
- Screen-per-function editing with OLED display and signature midiphy hardware
- User interface collaboration: delegate specific editing tasks to dedicated units
- ROM bank with 100 preset patches
- Advanced features and expansion:
 - Independent arpeggiator per oscillator

- Integrated wave sequencer: progressive animation of sound parameters
- MIDI input and output through nexusMIDI expanders (available separately)
- phybus network connectivity: reassign ports and route control signals
- Save and load sessions and patches to micro SD card (available separately) with total recall capability

4. Quickstart

1. Make the appropriate connections and screw into a rack
 - a. Add phybus cables between modules (skip if there is only one module)
 - b. Place exactly two bus termination jumpers: one on the first and one on the last module of a chain
 - c. Plug in IDC Eurorack power cables
2. Usage example: attach cables to ports
 - a. 1V/oct CV source to CV In
 - b. Gate source to Gate In
 - c. Audio out to a mixer or output module
3. Power up and play or sequence in notes with CV/gate
4. Turn the encoder knob to scroll through the ROM bank, exploring preset patches
5. Select patch "R010 Acid Blob"
6. Enter the menu by pressing the encoder knob
7. Navigate to the filter page by turning the encoder knob
8. Press the key to enter the filter menu
9. Scroll to the "Cutoff" submenu
10. Press the key and modify cutoff value by turning the encoder knob
11. After setting the cutoff frequency, press the key again to jump back to the filter submenu
12. Press the encoder knob to jump back to the main menu
13. Navigate to the ARP screen
14. Scroll through the settings and set Arpeggio to on
15. Set Octaves to 3
16. Play or sequence in notes with CV/gate to hear the arpeggiated sound
17. Push the encoder to navigate back to the menu system and explore the other sections.
18. Insert a microSD card to automatically save your current session, allowing you to continue your work when you next power up your modular system. (Note: patches need to be saved manually on the SD card after they were edited)



Enjoy your zetaSID!

5. Connections

5.1 Eurorack power

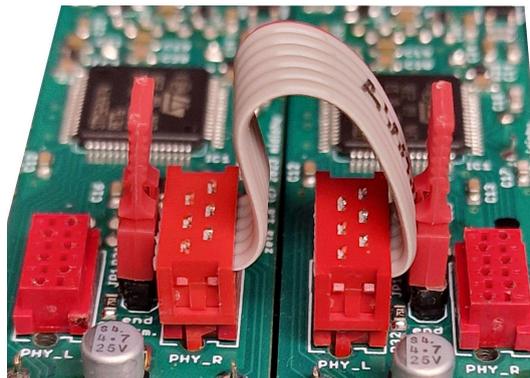
- Standard 10-pin header with $-12V$ indicated using the red stripe
- The module is protected from reverse polarity, but it is still recommended to make all connections with the rack power switched off
- 5V bus power is not required

5.2 phybus

The midiphy phybus system is a high-speed, expandable data protocol for low-latency routing of data streams, MIDI and CV/gate conversion. A row of connected modules can interact to share user interface control elements and virtual services.

Connect as follows:

- Daisy-chain adjacent modules using a six-conductor phybus ribbon cable from PHY_L to PHY_R
 - Consider making all phybus connections before connecting to power and screwing the modules into the rack
- Leave the outer PHY_L and PHY_R connectors empty
- Place a total of two termination jumpers on the two-pin “end term.” headers
 - Only the outer (two) modules of a network should be terminated
 - Don't place the jumper for internal modules
 - If additional modules are added, remove all jumpers except for those located on the two modules at the ends of the chain
- Don't use the phybus headers for any other purpose



(empty) — terminator — phybus cable — terminator — (empty)

6. Front panel features and ports



- 1** CV in local port
 - Range: $-5V$ to $+5V$ or 0 to $10V$ (configure via the setup screen)
 - Default: $1V/oct$ scaling (configure scaling, quantization, offsets via the input socket screen)
- 2** CV in LEDome
 - Press to splice this physical input port to a compatible input socket on your phybus network
 - Default: spliced to the **Note Pitch** input socket
- 3** Gate in local port
 - Accepts nominal $+5V$ gate signals
 - Default: spliced to the **Note Gate** input socket
- 4** Gate in LEDome
 - Press to splice this physical input port to another compatible input socket on your phybus network
- 5** Audio out local port
 - zetaSID audio output
 - outputs eurorack level audio, **do not directly attach headphones to the 3.5mm audio output port**
- 6** Audio out configuration LEDome
 - Press to configure the audio output
- 7** MicroSD card slot
 - Use FAT32 formatted cards
- 8** OLED
 - Shows the local user interface - expand with more zetaSIDs via phybus to grow the available user interface
- 9** Encoder with pressable knob
 - Press to enter the menu
 - Turn to change parameters
 - Push-and-hold while turning to accelerate parameter inputs, i.e. to perform a faster filter sweep
- 10** Illuminated mechanical key, referred to as “key”
 - Press to enter the currently selected menu item or to edit the currently selected parameter or setting

7. Interacting with zetaSID

7.1 Play a lead or drum engine voice

- Lead engine
 - Use CV/gate local ports
 - Note pitch/CV for tuning: 1V/oct (0V = C3)
 - Note gate to fire the SID output amplifier envelope
 - Use MIDI
 - Requires additional phybus MIDI capable module, e.g. nexusMIDI
- Drum engine
 - Use CV/gate local ports (see above)
 - Use virtual trigger 1–4 input sockets
 - Splice one or more phybus gate input ports by pressing their nearby LEDome buttons and assign them to the Drum trig 1-4 input sockets
 - Use phybus based MIDI notes C3–D#4 to trigger drums 1–16
 - Requires additional nexusMIDI module, splice by pushing the MIDI IN LEDome button and assign to the virtual MIDI In 1 or 2 input.
- Modulation, splicing and subscription
 - Repurpose spare local ports (press port LEDome buttons and assign)
 - Splice CV ports from other modules (using LEDome buttons)
 - Splice MIDI ports (using LEDome buttons)
 - Subscribe to broadcasted phybus data streams from other modules (via the inputs menu)

7.2 Menus and editing

- When in the menu or in a screen, turn the encoder to navigate between screens and to select parameters
- Press the key to enter the selected screen or to start editing the selected parameter
 - Active editing is indicated by a larger font size and animated lines
 - Turn the encoder knob to adjust the active parameter
 - Push and turn the encoder knob to accelerate inputs while editing a parameter
 - Press the key to confirm the change and stop editing the active parameter
- Return to the main menu by pressing the encoder knob
 - Nested screens require two presses to return to the main menu

7.3 Session and patch configuration

- See dedicated chapter

8. Splicing and subscription over phybus

All phybus-equipped modules may interact, sharing ports and datastreams to create a powerful inter-connected network.

A virtual connection between a physical port and any module on the network is established by creating a splice between them. Voltage or data received at the port is then used to control the remote modules without using physical patch cables. Likewise, data produced by a module may be spliced to an output port and used elsewhere within the modular system.

Some modules may also offer logical services (not based on a physical input or output port) that other modules may subscribe to.

8.1 Definitions

8.1.1 Virtual and physical connections

Term	Description
Local	Module on the phybus network that is the current point of focus
Remote	Module on the phybus network that is distal from the local module
Stream	Network data broadcasted/subscribed to or flowing to/from a port
Port	Physical connector e.g., DIN, 3.5mm
Socket	Virtual location that transmits or receives a stream
Splice	Connection or action that interfaces a socket with a port
Service	Provides data that other modules may subscribe to
Subscription	Action that interfaces a service with an input socket

8.1.2 Stream and port types

Symbol	Type	Description
	CV	CV or high-resolution service
	Gate	Active with an indefinite duration
	Trigger	Active with a fixed duration
	MIDI	Notes, clock, controllers, modulators, sysex

8.1.3 LEDome indication

Colour	Indicates
Warm white	Port is unused and available for splicing, flashes with port activity
Cool white	Splice process started with this port (blinks momentarily)
Off	Port is spliced and in use, but is idle or voltage is near 0V
Green	Voltage 0 to +10V, brightness scales with positive voltage
Red	Voltage -10 to 0V, brightness scales with negative voltage
Orange	Gate
Cyan	Trigger
Blue	Audio +/- up to 10V p-p, brightness scales with output level

8.2 Splicing



The image shows a 'Splice' screen with a MIDI connection diagram. The diagram includes a MIDI 1 socket, a MIDI 1 module, and a MIDI 1 connection. The screen is annotated with numbered callouts: 1 points to the MIDI 1 socket, 2 to the MIDI 1 module, 3 to the MIDI 1 connection, 4 to the connection established indicator, 5 to the local socket if connected, or clear/cancel commands, and 6 to the encoder knob and key action legend.

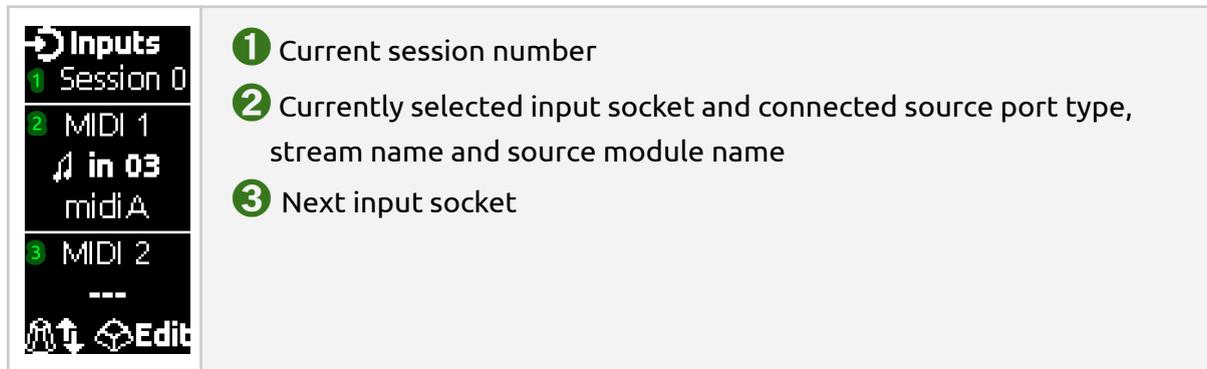
- ① Port type (**MIDI**)
- ② Associated source global stream name (**in 03**)
- ③ Associated module name and enumeration (**midIA = first nexusMIDI**)
- ④ Connection established indicator
- ⑤ Local socket if connected, or clear/cancel commands
- ⑥ Encoder knob and key action legend

- To start splicing, press an LEDome adjacent to a local or remote physical port
- All OLEDs on the phybus network display the splice screen
- Turn the encoder knob on the selected module to associate the port with a compatible socket
- Press the key to confirm connection of the splice
 - The LEDome next to the physical port flashes white to indicate that it is selected
- Continue to create splices as required
 - One port may be spliced to multiple sockets
- Choose the cancel option to abort the operation and return to the previous screen
- Choose the clear option to disconnect a port
- Query an actively spliced port by pressing the corresponding LEDome
 - All modules that associate with that port display the established connections

- Clear splices if desired

8.3 Input sockets

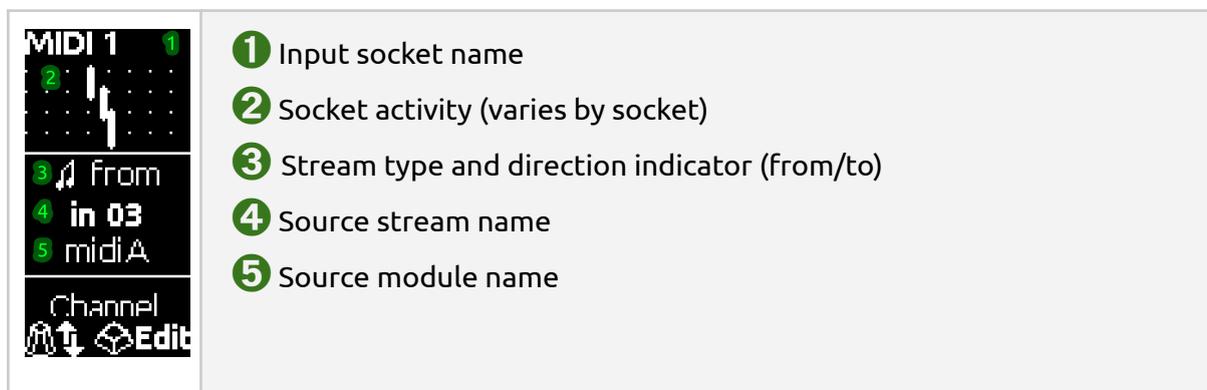
View and configure the input sockets that receive voltage or data signals from local or remote ports on a phybus network, or subscribe to services offered by modules.



8.3.1 Select input socket

- Scroll through the available input sockets by turning the encoder knob
- Configure an input socket by pressing the key
 - Press the encoder knob to exit the input socket configuration screen
 - Press again to exit to the main menu

8.3.2 Input socket activity indicator



Input socket	Stream type	Activity indicators
MIDI In 1, 2	♪	<ul style="list-style-type: none"> ● Note ● Clock ● CC ● Pitchbend ● SysEx
Note Gate	∩	<ul style="list-style-type: none"> ● Gate (triggers lead engine playback)

Input socket	Stream type	Activity indicators
Trig 1–4	⊥	<ul style="list-style-type: none"> • Drum trigger status
Note Pitch	∩	<ul style="list-style-type: none"> • Graphical • Voltage • Nearest quantised note
LFO1 depth	∩	<ul style="list-style-type: none"> • Graphical • Voltage • Applied depth setting
Filter cutoff	∩	<ul style="list-style-type: none"> • Graphical • Voltage • Applied filter cutoff setting

8.3.3 Connect port or service to input socket

- Scroll through the available ports or services by turning the encoder knob
 - For ports: the LEDome associated with the port illuminates
 - For services: the broadcasting module provides a notification
 - Clear an input socket by selecting "---"
- Confirm by pressing the key

Note: pressing the LEDome associated with a port creates an equivalent splice to a socket.

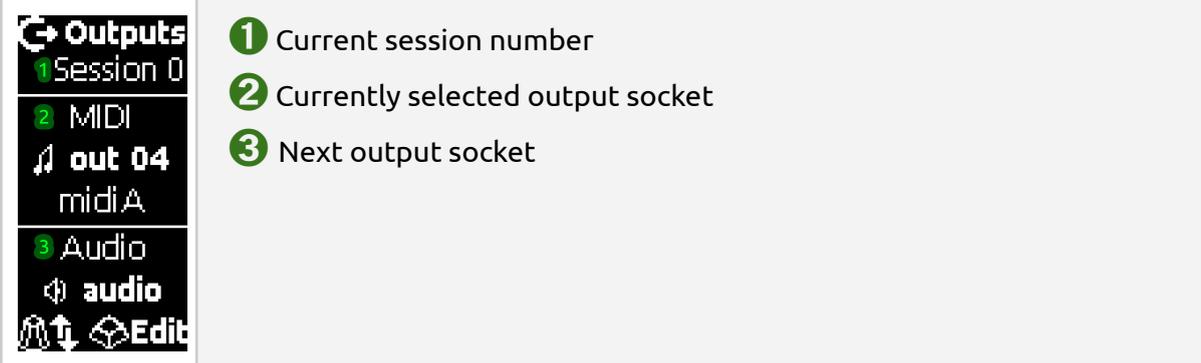
8.3.4 Configure input socket

Input socket	Configuration options
MIDI In 1, 2	<ul style="list-style-type: none"> • MIDI channel <ul style="list-style-type: none"> ○ Omni ○ 1–16 • Velocity <ul style="list-style-type: none"> ○ On: scales output DCA ○ Off (default): notes played at full velocity • Clock <ul style="list-style-type: none"> ○ Auto (default): incoming clock overrides internal clock ○ Agent: waits for incoming clock <ul style="list-style-type: none"> ■ Never uses internal clock ○ Chief: ignores incoming clock <ul style="list-style-type: none"> ■ Always uses internal clock ○ Chief BPM (auto/chief clock; default 120) <ul style="list-style-type: none"> ■ Choose BPM
Note Gate	<ul style="list-style-type: none"> • Invert (default off)
Trig 1–4	<ul style="list-style-type: none"> • Target (drum 1-16)

Input socket	Configuration options
Note Pitch	<ul style="list-style-type: none"> • Scale <ul style="list-style-type: none"> ○ Range (default 100%): -200% to +200% <ul style="list-style-type: none"> ■ Negative values invert the signal • Octave <ul style="list-style-type: none"> ○ Range (default 0V = C3): 1V steps • Transpose <ul style="list-style-type: none"> ○ Range (default 0V): 1/12V steps (semitones) • Finetune <ul style="list-style-type: none"> ○ Range (default 0): -100 to +100 cent • Quantise to semitone
LFO1 Depth	<ul style="list-style-type: none"> • Scale <ul style="list-style-type: none"> ○ Range (default 100%): -200% to +200% <ul style="list-style-type: none"> ■ Negative values invert the signal • Offset <ul style="list-style-type: none"> ○ Range (default 0V): 1V steps • Trim <ul style="list-style-type: none"> ○ Range (default 0V): 1/12V steps
Filter Cutoff	<ul style="list-style-type: none"> • Scale <ul style="list-style-type: none"> ○ Range (default 100%): -200% to +200% <ul style="list-style-type: none"> ■ Negative values invert the signal • Offset <ul style="list-style-type: none"> ○ Range (default 0V): 1V steps • Trim <ul style="list-style-type: none"> ○ Range (default 0V): 1/12V steps

8.4 Output sockets

View and configure the output sockets that send voltage or data signals to local or remote ports on a phybus network.



1 Current session number
2 Currently selected output socket
3 Next output socket

8.4.1 Select output socket

- Scroll through the available output sockets by turning the encoder knob
- Configure an output socket by pressing the key
 - Press the encoder knob to exit the output socket configuration screen
 - Press again to exit to the main menu

8.4.2 Output socket activity indicator



- ① Output socket
- ② Socket activity (varies by socket)
- ③ Currently selected socket option: audio output gain adjustment

Output socket	Stream type	Activity indicators
MIDI Out	♪	<ul style="list-style-type: none"> Note (for arpeggio forwarding) SysEx - truncated (for use with a remote SysEx controller)
Audio	None	<ul style="list-style-type: none"> Output Audio Scope Automatic audio limiter level (avoids clipping)

8.4.3 Connect output socket to port

- Scroll through the available ports by turning the encoder knob
 - The LEDome associated with the port flashes white
 - Clear an output socket by selecting "---"
- Confirm with the key

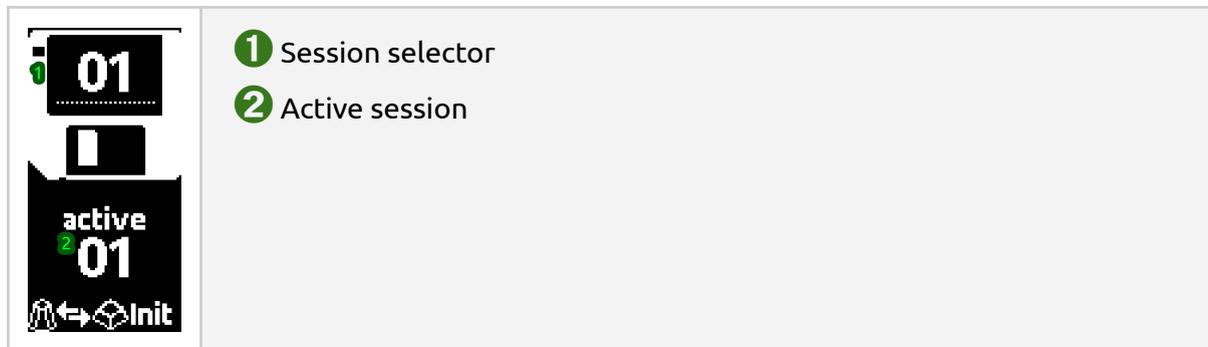
Note: pressing the LEDome associated with a port creates an equivalent splice from a socket.

8.4.4 Configure output socket

Output socket	Configuration options
MIDI Out	<ul style="list-style-type: none"> MIDI channel (1-16) Send ARP (forward arpeggio notes to MIDI output) Reset to defaults
Audio	<ul style="list-style-type: none"> Base Gain (default "Low"): 0 to +24 dB output gain, affected by automatic audio limiter to avoid clipping Reset to defaults

9. Session and Patch screens

zetaSID stores up to 100 sessions on a microSD card (available separately). If configured, it can broadcast the session switch operation to other modules within a phybus network, allowing for instant reconfiguration of patches, services and splices.



9.1 Session

To initialise a session:

- Turn the encoder knob so that the selected and active session numbers show the same value
- Press the key to initialize the session - this will reset the session to its
 - default patch settings
 - Link mode
 - Polyphony mode
 - Instrument ID
 - default input and output socket options

To switch a session:

- Turn the encoder knob to select another session number
- Press the key to save the active session and switch to the selected session
 - Sessions are also saved continuously in the background
- Alternatively, insert another microSD card to load the most recent session on that card

Note: if you are using multiple zetaSIDs to increase voice polyphony and if you are happy with the default input and output socket options for each module, it is sufficient to use only a single microSD card: configure one module as a **Chief** (see next section) and store all patch data on the microSD card of that node. All other nodes will by default become **Agents** after startup, when no local SD card is present and when a **Chief** is detected.

9.2 Patch

The patch screen is shown after startup, with the "patch select" command activated.



The screenshot shows a patch screen with the following elements:

- 1 phybus name of this module (sidD)
- 2 Polyphony
 - number (2)
 - stereo channel (R) of this module
- 3 Oscilloscope view of the current audio output
- 4 SID patch engine type
 - L (lead)
 - D (drum)
- 5 Active command
- 6 Patch name
- 7 Editing indicator: animated when modifying a parameter or command
- 8 Encoder knob and key action legend

zetaSID automatically creates a PATCHES folder within the root directory of a fresh microSD card. Saved patches take the following form:

A123 - Patch Name.syx

- The first letter (A-H) corresponds to user patch bank 1-8
- Three digits designate the patch number within the bank (up to 127)
- The patch name is spelled out in plain text
- The .syx extension

On an external device, transfer downloaded patches into the PATCHES folder on the microSD card, ensuring that they follow the naming convention above.

Backup patch data regularly!

9.2.1 Patch select

- Load new patches from user banks A–H or ROM bank R
- If configured as chief (see link mode), this zetaSID transmits patch changes to all connected link mode agents
- The active patch is stored in the current session

R011
Stereo
Asteroids

9.2.2 Link mode

- Off: standalone operation

Link Mode
Chief
+3 agents

- Chief: facilitates storing, loading, polyphony mode, name and initialisation of the shared patch
 - In chief mode, the number of peer agents is listed
 - Only one chief can be configured per instrument cluster
- Agent: follows the chief regarding patches, polyphony modes, etc.
 - In agent mode, the name of the chief module is listed
- The selected link mode is stored in the current session

Note: chiefs and agents must be configured with the same instrument ID to link up to a polyphonic instrument cluster (see Section 9.2.3).

9.2.3 Instrument ID

- Range: 0–15
- Agents with the same instrument ID load the same patch and expand the polyphony
 - Modules configured with different IDs (or with link mode switched off) can load a different patch
- IDs are stored in the current session
 - Configure and switch sessions to instantly re-partition an instrument cluster into different voicing or engine types

Instrument
0

9.2.4 Polyphony mode

- Indicates the current polyphony, limited by the total number of zetaSID modules within an instrument cluster and the voice mode
 - The maximum polyphony count is six for both stereo and mono operation
 - Stereo operation assigns two zetaSID modules per voice
 - Define an instrument cluster by assigning one chief and the desired number of agents
- The following voice modes are available
 - Unison
 - Stereo
 - Mono
- The selected polyphony mode is stored in the current session

Polyphony
2
Stereo

9.2.5 Unison detune

- Spreads the pitch of multiple zetaSIDs operating in unison voice mode
- The selected unison detune value is stored in the current session

Unison
Detune
0

9.2.6 Legato mode

- On: sends a gate-off only when all notes are released (typically only relevant for MIDI notes or ORed gate sources)
- Off: sends a gate off when a note is released regardless of any held

Legato
off

notes

- The selected legato mode value is stored in the patch

9.2.7 Glide mode

- Normal: active if configured within oscillator portamento rate
- SusKey: active only if the second note is played before the previous note is released
- The selected glide mode value is stored in the patch



9.2.8 Init patch

- Hold the key for two seconds to reset parameters to a generic starting point
- Tap the key to exit
- Turn the encoder knob to choose the SID engine type
 - L: lead engine
 - D: drum engine
- Initialising a patch deletes the current patch
 - Save the current patch if required (see section 9.2.10)



9.2.9 Edit patch name

- Turn the encoder knob to select a different letter
- Press and turn the encoder knob to adjust the cursor position
 - Acceleration is not active for this action
- Press the key to apply the current patch name and exit to the previous screen
- Save the patch to apply any changes



9.2.10 Save patch

- Ensure that a FAT32 formatted microSD card is inserted
- Turn the encoder knob to choose a save location
 - Banks A–H each with 128 slots are available
 - Bank R is ROM memory
- Choose an empty slot to save a new patch, or overwrite an existing one
- Hold the key for two seconds to save the patch
- Tap the key to exit without saving



9.2.11 ASID mode

- Engaged: zetaSID responds to the ASID protocol over MIDI, i.e. provided via a nexusMIDI expander (try <https://deepsid.chordian.net/> for ASID files that can be streamed from your browser to a USB MIDI device which should then be connected to nexusMIDI)



- If using multiple zetaSIDs: turn the encoder to perform fat unison detuning per zetaSID (see displayed **UniDet:** value)
- Push the key to engage or disengage ASID mode

10. Lead and drum engine screens

10.1 Oscillators (OSC)

In lead engine mode, configure three oscillators of the emulated SID sound chip.

	<p>1 Output DCA (digitally controlled amplifier) DADSR envelope per oscillator; selected oscillators are highlighted</p> <p>2 Active menu item: select oscillators for editing</p>
---	--

10.1.1 Select oscillators

- Turn the encoder knob to select one or more oscillators to edit
 - By default, parameter changes propagate to
 - both left and right channels, which can be disabled from Setup > Patch Stereo Edit
 - all modules with the same instrument ID



10.1.1.1 Waveform selection

- Select any combination of waveforms for each oscillator
 - Triangle
 - Sawtooth
 - Pulse
 - Noise



10.1.2 Transpose

- Adjusts the coarse tuning in semitone steps (range: -64 to +63)



10.1.3 Finetune

- Adjusts the fine tuning



10.1.3 Oscillator sync

- Activates hard sync

Follower	Leader
OSC1	OSC3
OSC2	OSC1
OSC3	OSC2

Osc Sync
Off

10.1.4 Ring modulation

- Only applicable for triangle waveforms

Oscillator	Modulated by
OSC1	OSC3
OSC2	OSC1
OSC3	OSC2

Ringmod
Off

10.1.5 Delay/attack/decay/sustain/release (DADSR)

- Output DCA envelope curve
 - Visualised graphically in the OSC screen

Delay
0

Attack
4

Decay
14

Sustain
10

Release
7

10.1.6 Pitchbend range

- Specifies the maximum MIDI pitch bend range in semitones

Pitchbend
Range
2

10.1.7 Portamento rate

- Range: 0–255
 - A value of 0 disables portamento
- See also: 9.2.7 Glide Mode, especially "SusKey"

Porta Rate
4

Porta Type
Glissando

10.1.8 Portamento type

- Normal: rate of pitch change depends on the direction of the slide
 - Sliding up to higher notes "accelerates" as pitch increases
 - Sliding down to lower notes "decelerates" as pitch decreases
- Glide: pitch changes at a constant rate
- Glissando: plays each semitone step

10.1.10 Pulsethwidth

- Range: 0000–4095
 - At least one pulse waveform must be active
 - Set a value of 2048 for a symmetrical square waveform

Pulsethwidth
1280

10.1.11 Gate hold

- Output DCA is held constant at the sustain level
 - Gates or note off messages have no effect

Gate Hold
off

10.1.12 Detune

- Range: 0–127
- Applies an offset value to Finetune for all oscillators

Detune
16

10.2 Drums

In drum engine mode, configure a kit of 16 different SID percussion models.



1 Drum Kit overview: the currently selected drum is highlighted. Drum playback within the kit is animated with a playback indicator.

2 Active menu item: select drum for editing

10.2.1 Select drum

- Turn the encoder knob to select drum 1–16 for editing

Select Drum
1

10.2.2 Assign voice

- LR (Left/Right): oscillators are assigned to the next free oscillator in a round-robin fashion
 - Assign the next drum to be played to the next free oscillator
 - Drums will be played on both the left and right channels of a stereo pair
- L- (Left): the drum is only played on the left audio channel
 - Plays up to three drum voices
 - Use this setting if only one zetaSID is available
- -R (Right): the drum is only played on the right audio channel
 - Plays up to three drum voices
- O1–O6: assigns an individual oscillator for the drum
 - Oscillators O1–O3 are played on the left zetaSID audio channel

Assign Voice
LR

- Use O1–O3 if only one zetaSID is available
- Oscillators O4–O6 are played on the right **zetaSID** audio channel
- Directly assigning oscillators in this way increases the priority for selected drums but reduces the polyphony of L/R assignment modes

10.2.3 Select model

Type	Model	Type	Model
Bass drums	BD1	Clap	CLAP
	BD2	Effects	FX1
	BD3		FX2
Snare drums	SD1		FX3
	SD2		FX4
	SD3		FX5
High hats	HH1		FX6
	HH2		FX7
Toms	TOM1		FX8
	TOM2		FX9

Select
Model
BD1

10.2.4 Attack/decay/sustain/release

- Output DCA envelope curve

Attack
0

10.2.5 Tune

- Range: –2 to +2 octaves in 256 steps

Decay
9

10.2.6 Drum gate length

- The duration of a drum sound

Sustain
12

Release
9

10.2.7 Speed

- Adjusts the playback speed of the associated drum model wave sequence

Gatelength
0

Speed
0

10.2.8 Extra parameter

- Adjusts a specific setting for each drum model
- Range: –127 to +128

Extra
Parameter
0

10.2.9 Velocity target

- Volume
- Filter cutoff
- Filter resonance
- Attack
- Decay
- Sustain
- Release
- Drum tune
- Gate length
- Drum speed
- Extra parameter

Velocity
Target
Filter Cut.

10.3 Filter

Control the 12dB/octave multimode filter, including oscillator routing.



1 Graphical filter response curve

2 Active menu item: filter channel routing

10.3.1 Oscillator channel routing to filter

- Routes any combination of oscillators O1/O2/O3 into the filter
- Unrouted oscillators bypass the filter

Routing
O 1+2

10.3.2 Filter cutoff frequency

- Range 0–4095

Cutoff
1984

10.3.3 Filter resonance

- Range: 0–15

Resonance
2

10.3.4 Filter mode

Set any combination of:

- LP (Lowpass)
- BP (Bandpass)

Mode
LP+BP

- HP (Highpass)

Note: This implementation of the SID filter emulates the behaviour of the original chip; the audio output can be routed to an external module for different sounds if desired. Some distortion is audible if all filters are active.

10.3.5 Filter key tracking

- Range Off, 1–255

Key Track
off

10.3.6 OSC 3 out

- Determines whether OSC3 will be routed to the filter or muted
 - Optionally mute OSC3 if it is used for sync or ring modulation

OSC3 Out
On

10.3.7 Filter interpolation

- Smooths out filter cutoff changes when modulated

Interpolate
off

10.4 Arpeggiators (ARP)

Each arpeggiator controls one oscillator.

 <p>The screenshot shows a menu with three sections. The top section is 'Arpeggiator overview' with a green '1' and a waveform. The middle section is 'ARP->OSC Routing' with a green '2' and '1+2+3'. The bottom section is 'Arpeggio' with 'On' and 'Edit' options.</p>	<p>1 Arpeggiator overview: shows the generated arpeggio notes as they are played.</p> <p>2 Active menu item: arpeggio routing.</p>
---	--

10.4.1 ARP routing

- Edit any combination of arpeggiators 1/2/3, each of which is coupled to the respective oscillator

ARP->OSC
Routing
1+2+3

10.4.2 ARP enable

- Enables or disables arpeggio(s)

Arpeggio
On

10.4.3 ARP direction

Considering a chord of notes A, B, C and D, the direction setting determines the note order:

Direction
Down

- Up: ABCDABCD

- Down: DCBADCBA
- U&D (Up&Down): ABCDCBABCDC
- D&U (Down&Up): DCBABCDCBAB
- UD2 (Up&Down #2): ABCDDCBAABCDDC
- DU2 (Down&Up #2): DCBAABCDDCBAAB
- Random: random note order

10.4.4 ARP clock divider

- Range: 1–64
- Divider relative to the MIDI or chief clock
- The equivalent note step length is displayed for rational divisions

Clock Div
48
8th note

10.4.4 ARP gate length

- Range: 1–64
- Sets the duration of a gate triggered by an arpeggio event

Gate length
8

10.4.5 ARP octave range

- Range: 1–8
- Octave alteration is added on top of the ARP direction effect

Octaves
2

10.4.6 ARP sorted

- On: notes play in chromatic order
- Off: notes play according to the order in which they were entered

Sorted
On

10.4.7 ARP latch

- On: latches and continues to play the arpeggio when keys are released
 - Entering a new note clears the latched arpeggio and starts another

Latch
off

10.4.8 ARP clock sync

- On: arpeggiated notes are synchronised to the clock
- Off: arpeggiated notes play as they are entered

Clock Sync
off

10.4.9 ARP constant cycle

- On: notes play within a fixed clock period
 - The more notes in the arpeggio, the shorter the duration of each note
- Off: notes play sequentially according to the divider setting

10.4.10 ARP easy chord

- On: upon releasing notes, arpeggios continue to play through the release segment of the output DCA envelope
 - Entering a new note clears the arpeggio and starts another
 - When this feature is enabled and if using ARP forwarding to an external MIDI port, MIDI notes will continue to play even after note release.
- Off: upon releasing notes, the last note of the arpeggio rings out through the release segment of the output DCA envelope

EasyChord
On

10.5 LFO

In lead engine mode, configure up to six LFOs with optional sync and one-shot triggering.



1 Graphical LFO overview; the currently selected LFO is highlighted.

2 Active menu item: LFO selection

Note: LFOs are identical for both channels of a stereo instrument but may be separately assigned to L/R targets.

10.5.1 LFO selection

- Select LFO1–6

LFO Select
LFO1

10.5.2 LFO enable

- Enables or disables the selected LFO

Enable
On

10.5.3 LFO depth

- Range: –128 to +127
 - Negative values invert the waveform

Depth
127

10.5.4 LFO rate

- Range: 0–255
 - Value 0: LFO holds at the current level (stopped)
 - Corresponds to ca. 0.008–45 Hz

Rate
42
0.8774 Hz

- If clock sync is active, rates > 244 correspond to the following bar or note lengths
 - 245: 64 bars
 - 246: 32 bars
 - 247: 16 bars
 - 248: 8 bars
 - 249: 4 bars
 - 250: 2 bars
 - 251: 1 bar
 - 252: 1/2 note
 - 253: 1/4 note
 - 254: 1/8 note
 - 255: 1/16 note

10.5.5 LFO delay

- Range: 0–255
 - A value of 0 disables the delay
- Effect of cycle mode on transition behaviour
 - One-shot: transitions from zero to the starting phase
 - Retriggering: current phase held, then transitions to the starting phase
 - Free running: delay has no effect

Delay
0

10.5.6 LFO phase

- Range: 0–255
 - A value of 128 applies a 180° phase shift
- Applicable only if one-shot or retriggering is configured

Phase
0

10.5.7 LFO waveform

The following bipolar and unipolar waveforms are available:

- Sine
- Triangle
- Pulse
- Ramp (sawtooth)
- Random (sample and hold)

Waveform
Sine
unipolar

10.5.8 Clock sync

- On: LFO syncs to a multiple or division of the clock according to the LFO rate setting

Clock Sync
off

10.5.9 LFO oneshot

- On: runs through one waveform period upon receiving a trigger

Oneshot
off

- Configure the trigger source from Trigger Matrix > LFO1–6 restart
- Off: LFO is free-running

10.6 Envelopes (ENV)

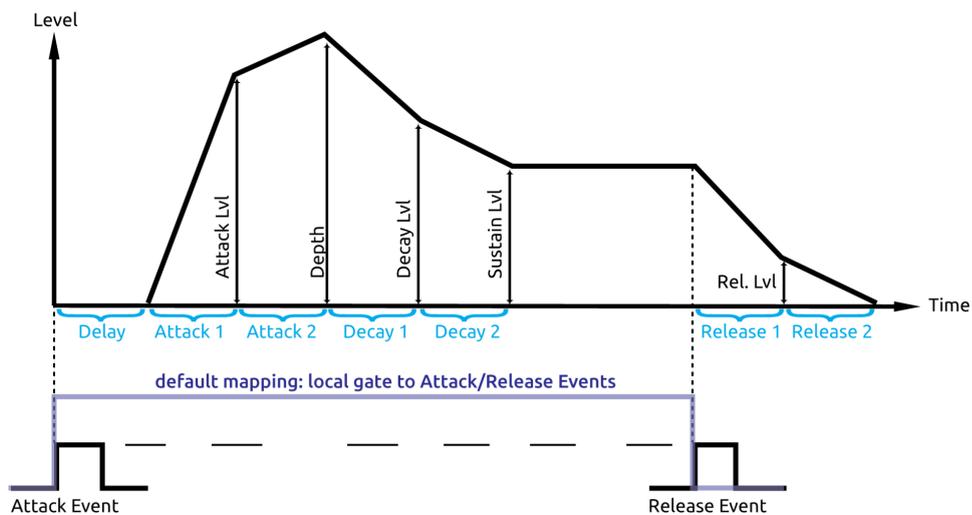
In lead engine mode, configure two DA²D²SR² envelopes with variable slopes (linear, exponential or log).



1 Graphical overview of each envelope state. The selected envelope is highlighted.

2 Active menu item: envelope selection

Note: envelopes are identical for both channels of a stereo pair but may be separately assigned to L/R targets, or a single envelope can be inverted for the second channel.



10.6.1 ENV select

- Select ENV1 or 2

ENV Select
ENV1

10.6.2 ENV depth

- Range: -128 to +127
 - Negative values invert the envelope

Depth
127

Delay
0

10.6.3 ENV delay

- Range: 0–255

10.6.4 ENV attack/decay/sustain/release

- Range: 0–255

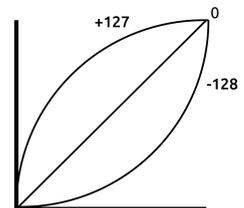
Segment time	Ramps to
Delay	(Minimum)
A1	Attack level
A2	Depth
D1	Decay level
D2	Sustain level
R1	Release level
R2	Minimum

Attack 1	121
Attack Lvl.	255
Attack 2	0
Decay 1	36
Decay Lvl.	255
Decay 2	48
Sustain Lvl.	64
Release 1	32
Rel. Lvl.	60
Release 2	0

10.6.5 ENV attack/decay/release curve response

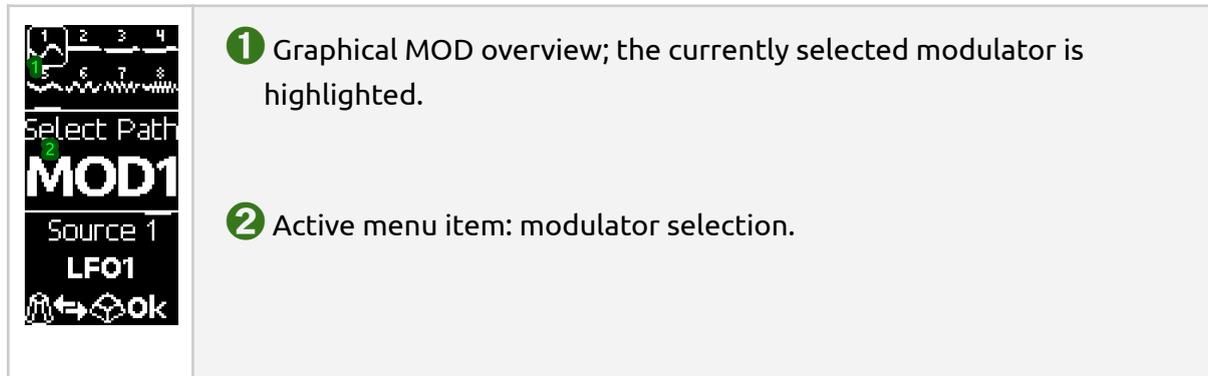
- Value 0: linear curve
- Range –128 to –1: exponential curve
- Range 1 to 127: log curve

Note: increasing the magnitude of curve response increases the respective segment time.



10.7 Modulators (MOD)

Modulators 1–8 each combine two sources using an operator and are distributed to one or several targets at a selected depth.



Note: modulators are identical for both channels of a stereo pair but may be separately assigned to L/R targets, or a single modulator can be inverted for the second channel.

10.7.1 MOD select

- Select MOD1–8

Select Path
MOD1

10.7.2 MOD source 1/2

The following sources are available:

- ---: disable source
- ENV1, ENV2
- LFO1–6
- MOD1–8
- ModW (modwheel)
- Note
- CC11–16
- Vel (velocity)
- PB (pitch bend)
- AT (aftertouch)
- WS1–4 (wave sequence)
- 0–127 (constant offset)

Source 1
LFO1

Source 2
MOD2

Note: MIDI sources are only available if a MIDI splice is present.

10.7.3 MOD operator

The following operators are available:

Operator
Add

Operator	Output	
---	Disabled	
Source1	Source 1 only	
Source2	Source 2 only	
Add	Source 1 + source 2	Arithmetic (decimal values)
Sub	Source 1 – source 2	
Mul	Source 1 * source 2	
XOR	Source 1 and Source 2 are treated as binary numbers and bitwise operations are performed. See table below for examples.	
OR		
AND		
Min	Minimum(source 1, source 2)	
Max	Maximum(source 1, source 2)	
<	Maximum depth if source 1 < source 2	
>	Maximum depth if Source 1 > source 2	
=	Maximum depth if source 1 = source 2	
S&H	Source 1 sampled when source 2 transitions from negative to positive	

XOR, OR and AND operator examples:

	Operator		
	XOR	OR	AND
Source 1 (= 45 decimal)	101101	101101	101101
Source 2 (= 56 decimal)	111000	111000	111000
Output (binary)	010101	111101	101000
Output (decimal)	21	61	40

10.7.5 MOD depth

- Range: –128 to +127
 - A value of 0 disables the modulator

Depth
127

- Negative values invert the modulator

10.7.6 MOD targets

- Pitch Oscillator 1–3
 - Route to L/R channel or both
- Pulswidth (PW) Oscillator 1–3
 - Route to L/R channel or both
- Filter Cutoff
 - Route to L/R channel or both
- Volume
 - Route to L/R channel or both
- Target 1/2; assign to the following destinations:
 - Pitch
 - Left channels: OSC1–3
 - Right channels: OSC1–3
 - PW (pulswidth)
 - Left channels: OSC1–3
 - Right channels: OSC1–3
 - CutL/R (filter cutoff frequency)
 - VolL/R (volume)
 - LFO1–6 depth
 - LFO1–6 rate
 - WS1–4 (wave sequencer position)

Pitch Osc1
L+R

Pitch Osc2
L+R

Pitch Osc3
L+R

PW OSC1
off

PW OSC2
off

PW OSC3
off

CutOff
Right

Volume
off

Target 1
LFO2 Dept.

Target 2
off

10.7.11 MOD invert target 1/2

- Inverts a modulator before distributing to target 1/2
 - Useful for stereo effects stemming from a single modulator

Invert
Target 1/L
off

Invert
Target 2/R
On

10.8 Trigger matrix

Configure a set of 14 events to trigger 24 targets.



1 Graphical trigger matrix overview, with events arranged by row and targets by column. Active row and column are highlighted, with connections indicated in bold white.

2 Active menu item: select source event (matrix row).

Note: the trigger matrix is identical for both channels of a stereo pair but events may be separately assigned to L/R targets.

Note: default patches use the Note On event to trigger the OSC1/2/3 output DCA envelopes, ENV1/2 and WS1–4.

10.8.1 Select event source

The following sources are available:

Source
Note On

Event	Occurs when
Note on	Note on or gate in event received
Note off	Note off or gate off event received
ENV1/2 sus.	ENV sustain segment reached
LFO1–6 cyc.	LFO completes one period
Clock	Clock pulse received
Clock:6	6th clock pulse received
Clock:24	24th clock pulse received
Clock start	MIDI clock start event received

10.8.2 Select target

Target	Result
OSC1–3 L/R	Triggers output DCA envelope <ul style="list-style-type: none"> Special: a received note off event triggers the release segment
ENV1/2 att.	Triggers ENV attack segment
ENV1/2 rel.	Triggers ENV release segment
LFO1–6 reset	Resets LFO
WS1–4 reset	Resets wave sequencer
WS1–4 step	Increments wave sequencer

Osc1 L
On

ENV1 Att.
On

ENV1 Rel.
Off

LFO1 Reset
Off

WS1 Reset
On

WS1 Step
Off

10.9 Wave sequencer (WS)

In lead engine mode, configure four tracker-like sequences that step through almost any zetaSID parameter.

Note: the original SID term was “wavetable”, which zetaSID renames as “wave sequencer” to avoid confusion with “wavetable synthesis”.



1 The currently selected wave sequence is highlighted

2 Position

3 Output value

4 Active menu item: selected wave sequence for editing

Note: wave sequences are identical for both channels of a stereo pair but may be selectively applied to a L/R channel or controlled from the modulator setting.

10.9.1 Select wave sequence

- Select WS1–4

Select
WS1

10.9.2 Clock divider

- Range: 1–64
- Divider relative to the MIDI or chief clock
- The equivalent note step length is displayed for rational divisions

10.9.3 Stereo channel assignments

- WS applied to either L/R channel, both or none

Left Chn
On
Right Chn
On

10.9.4 WS target

- Select from the table of targets
 - e.g., T96–103: MOD1–8 depth
- Certain targets control all elements of a group
 - e.g., T40: finetune OSC1+2+3

Assign to
1
Volume

Group	Parameter	Group element								
		All	1	2	3	4	5	6	7	8
Volume	Volume	1								
Filter	Cutoff	4								
	Resonance	5								
	Routing	6								
	Mode	7								
OSC	Detune	3								
	Waveform	32	33	34	35					
	Transposition	36	37	38	39					
	Finetune	40	41	42	43					
	Portamento rate	44	45	46	47					
	Pulsewidth	48	49	50	51					
	Pitch bend	80	81	83	84					
DADSR	Delay	52	53	54	55					
	Attack	56	57	58	59					
	Decay	60	61	62	63					
	Sustain	64	65	66	67					
	Release	68	69	70	71					
ARP	Clock divider	72	73	74	75					
	Gatelength	76	77	78	79					
MOD	Depth		96	97	98	99	100	101	102	103
LFO	Waveform		128	129	130	131	132	133		
	Depth		136	137	138	139	140	141		
	Rate		144	145	146	147	148	149		
	Delay		152	153	154	155	156	157		
	Phase		160	161	162	163	164	165		

Group	Parameter	Group element								
		All	1	2	3	4	5	6	7	8
ENV	Depth		193	209						
	Delay		194	210						
	Attack 1		195	211						
	Attack level		196	212						
	Attack 2		197	213						
	Decay 1		198	214						
	Decay level		199	215						
	Decay 2		200	216						
	Sustain		201	217						
	Release 1		202	218						
	Release level		203	219						
	Release 2		204	220						
	Attack curve		205	221						
	Decay curve		206	222						
	Release curve		207	223						
WS	Clock divider		224	225	226	227				
	Start		228	229	230	231				
	End		232	233	234	235				
	Loop		236	237	238	239				
	Position		240	241	242	243				
Direct OSC	Play note	252	253	254	255					

Note: Direct OSC note support for oscillators 2 and 3 (targets 254/255) is not supported by the Lead engine, but may be supported in the future by other engines.

10.9.5 WS start/end/loop position

- Range: 0–128
 - Default: Start 1, End 32, Loop 1
 - WS1–4 may use overlapping positions

10.9.6 MOD to WS position

- Position controlled by modulator value
 - Limited by WS start and end position range
 - Assign WS1–4 as targets within MOD configuration
 - Lower priority than note to position
 - Clock divider and loop position ignored

MOD to
Position
off

10.9.7 Note to WS position

- Position controlled by note value
 - Limited by start and end position range
 - Higher priority than MOD to position
 - Clock divider and loop position ignored

Note to
Position
off

10.9.8 WS oneshot

- On: runs through one cycle upon receiving a trigger
 - Ignores loop position
 - Trigger source derived from Trigger Matrix > WS1–4 Reset
- Off: WS is free-running

Oneshot
On

10.9.9 WS editor

- Position number: 0–127 steps
 - WS1–4 share the same table
 - Limited by WS1–4 start and end positions
 - Active position highlighted
- Output value in hexadecimal
 - Set relative change from the previous value (“rel” in decimal):
 - Decrement: 0x00–0x39 (–64 to –1)
 - Static: 0x40
 - Increment: 0x41–0x79 (+1 to +63)
 - Set absolute value (“abs” in decimal):
 - 0x80 to 0xFF (0 to +127)
- Values are scaled to match the full range of the target
 - Certain targets decode values to perform special functions

#016 0x80
#017 0x40
#018 0x40
#019 0x40

#001
0x80
0 (abs)

10.9.10 Special WS targets

The following subsections list targets and hexadecimal values or ranges that correspond with particular settings.

10.9.10.1 Filter routing and mode (targets 6 and 7)

Hexadecimal range	Filter routing	Filter mode
0x80–0x87	None	Mute
0x88–0x8F	OSC1	LP
0x90–0x97	OSC2	BP
0x98–0x9F	OSC3	LP+BP
0xA0–0xA7	OSC1+2	HP
0xA7–0xAF	OSC2+3	LP+HP
0xB0–0xB8	OSC1+3	BP+LP
0xB9–0xBF	OSC1+2+3	LP+BP+HP

10.9.10.2 OSC waveform (targets 32–35)

Hexadecimal	OSC Waveform
0x80	Off
0x81	Triangle
0x82	Saw
0x83	Triangle + Saw
0x84	Pulse
0x85	Triangle + Pulse
0x86	Saw + Pulse
0x87	Triangle + Saw + Pulse
0x88	Noise (others disabled)

The following “hexadecades” set additional OSC parameters:

Hexadecade	Disabled	Sync	Ringmod
0x9x	✓		
0xAx		✓	
0xBx	✓	✓	

0xCx			✓
0xDx	✓		✓
0Ex		✓	✓
0xFx	✓	✓	✓

10.9.10.3 LFO waveform (targets 128–133)

Hexadecimal range	LFO Waveform
0x80–0x87	Sine bipolar
0x88–0x8F	Triangle bipolar
0x90–0x97	Saw bipolar
0x98–0x9F	Pulse bipolar
0xA0–0xA7	Random bipolar
0xA7–0xAF	Sine unipolar
0xB0–0xB8	Triangle unipolar
0xB9–0xBF	Saw unipolar
0xC0–0xC8	Pulse unipolar

10.9.10.4 Direct OSC (targets 252–255)

Hexadecimal (range)	Function
0x80	Note off
0x81	Hold note
0x82–0xFB	Play MIDI note number 2–123
0xFC–0xFF	Play notes in the order (1–4) in which they were received (build your own arpeggiator!)

11. Setup

Configure permanent settings that persist across sessions



- 1 Setup screen
- 2 Active menu item: choose screensaver type
- 3 Next menu item

Parameter	Setting
Screensaver type	<ul style="list-style-type: none"> • Blank • Animated starscape
Screensaver timeout	<ul style="list-style-type: none"> • Minutes after which the screensaver activates
CV in port range	<ul style="list-style-type: none"> • -5V to +5V (default) • 0-10V
Transmit session changes	<ul style="list-style-type: none"> • On: sends out a "change session to" command to other nodes when loading a session on this zetaSID (default) • Off: session changes are not transmitted
Receive session changes	<ul style="list-style-type: none"> • On: modules that receive a "change session to" command switch to the appropriate session (default) • Off: "change session to" commands are ignored for this module
Patch stereo edit	<ul style="list-style-type: none"> • On: parameter changes propagate to both L/R channels of an instrument cluster • Off: patch changes originating from the left channel propagate only to other left channels of an instrument cluster; right channels behave in the same way
LED Brightness	<ul style="list-style-type: none"> • Static: low brightness; static port activity • Low: low brightness; dynamic port activity (default) • High: high brightness; dynamic port activity
Scope Speed	<ul style="list-style-type: none"> • Time axis compression of the scope (1:1 ... 1:16)

SD Save Interval	<ul style="list-style-type: none">• 5 sec ... 30 sec - define the time after which changes to the session are saved on the microSD card. Note: the SD card should not be removed and the system should not be powered down, when saving is in effect. Higher values reduce the risk of filesystem corruption (in case of sd card ejection/power down) and also reduce the write load on the SD card.• A tiny "SD" icon is shown on top of the screen during SD card accesses - do not eject the card or power down your modular system when this icon is shown.• Remember to back up your SD cards on your main computer from time to time.
Wrap Patch Selection	<ul style="list-style-type: none">• On: wrap when scrolling beyond the limits of the patch list, i.e. to quickly move from patch R001 to patch F052 (if that is your last user patch)• Off (default): stop scrolling at the limits of the patch list

12. What's New/Changelog

In case you have been using zetaSID for a while and wonder what changes were introduced in newer software revisions, have a look here:

V1.4b-d (matches software released on 2026/02/26)

- Improvements of wave sequencer and patch wrap-around (thanks, Inty!)

V1.4a (matches software released on 2026/02/20)

- Initial release of zetaSID

APPENDIX A: ROM Patchbank

Lead

R001 - Poly Sunrise H
 R002 - The Loader
 R003 - Relax in Space
 R004 - Cannon Y
 R005 - Rinkeby Centrum
 R006 - Curveball
 R007 - Popcorn
 R008 - Techno 5th
 R009 - Oldschool

R010 - Acid Blob
 R011 - Stereo Asteroids
 R012 - Analog Dream4
 R013 - Gotland
 R014 - Den of Saws
 R015 - TV Piraterna
 R016 - Monty Lead3
 R017 - Lead Stacco1
 R018 - League

R019 - Mustache On
 R020 - Techno PWM
 R021 - Vib Synth
 R022 - Tensta Marknad
 R023 - Accomp1
 R024 - Bubble Grapes
 R025 - Nice Lead

Bass

R026 - Deep Bass 9
 R027 - Pulsator
 R028 - Driving Bass
 R029 - Bad Basshead
 R030 - C64 Bass
 R031 - Auto Zone
 R032 - Warm Bass
 R033 - Razor Blade]]
 R034 - NT Bass

R035 - Leaky Capacitor
 R036 - Autobahn
 R037 - Radar Bass H
 R038 - Slussen
 R039 - Seq Bass4
 R040 - Seq Bass5
 R041 - Monty Bass
 R042 - Chipmelter
 R043 - PWM Bass1

R044 - PWM Bass2
 R045 - PWM Bass3
 R046 - PWM Bass4
 R047 - Organic Bass
 R048 - Twister
 R049 - Skate or Cry!
 R050 - Zak Bass

ARP

R051 - Power Glove ARP
 R052 - Interlace ARP
 R053 - Laserdome Lover
 R054 - Auto ARP

R055 - The Future ARP
 R056 - 8-bit Starpig
 R057 - Pac Pill ARP
 R058 - wARP Drive

R059 - Transistor ARP
 R060 - Soothing ARP

Wave

R061 - SEQ Vintage B
 R062 - SEQ Runner
 R063 - SEQ Falling
 R064 - Alien Groove

R065 - Step by Step
 R066 - ARPSEQ One C
 R067 - ARPSEQ Two A
 R068 - ARPSEQ Four

R069 - SEQ Trance Bass
 R070 - SEQ Powerbass

Kit

R071 - 8-Bit Mono
 R072 - 8-Bit Kit
 R073 - Hawkeye Mono
 R074 - Hawkeye Kit

R075 - Frogger Mono
 R076 - Frogger Kit
 R077 - Chip Mono
 R078 - Chip Kit

R079 - Smithy Mono
 R080 - Smithy Kit

Drum

R081 - Bassdrum A
 R082 - Bassdrum B
 R083 - Kick
 R084 - Snare

R085 - Cymbal A
 R086 - Cymbal B
 R087 - Cymbal C
 R088 - Hat

R089 - Klick
 R090 - Lo-Fi Perc

FX

R091 - A Stormy Day
 R092 - RampUp
 R093 - Shamus Case
 R094 - Classic Zelda

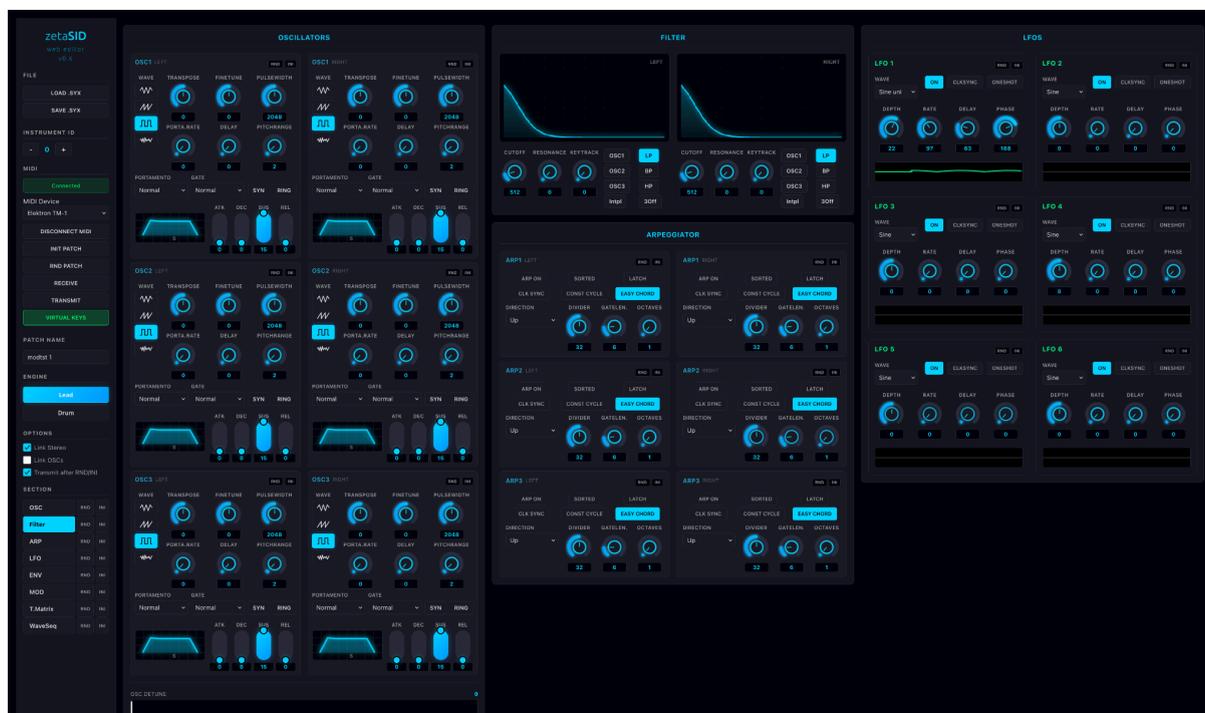
R095 - Nonlinear Time
 R096 - Arcade Lover
 R097 - Lords of Chaos
 R098 - Sopbil by Night

R099 - Abducted
 R100 - Rebirth H

APPENDIX B: Using the zetaSID web editor

If you are using a nexusMIDI expander, it is possible to directly edit all of zetaSIDs patch parameters with the midiphy zetaSID web editor found here:

<https://www.midiphy.com/en/zetasid-webedit/>



Setup

- Connect USB MIDI interface cables: USB MIDI OUT to nexusMIDI IN2, USB MIDI IN to nexusMIDI OUT2
- Press the LEDome key next to nexusMIDI IN2 and create splices to the "MIDI IN2" sockets of all zetaSIDs
- Press the LEDome key next to nexusMIDI OUT2 and create splices to the "MIDI OUT" sockets of all zetaSIDs
- (If you're using microSD cards in the zetaSIDs, splices will be saved automatically)

Usage

- Use "LOAD .SYX" and "SAVE .SYX" for file operations - loading existing patches or saving your patches to disk
- Set the Instrument Id to match the Instrument # on your Chief zetaSID
- "Connect" the USB MIDI device
- You can now receive and transmit patches, as well as randomize and rename them
- If you have no other MIDI or CV/Gate inputs connected, you can use the virtual keyboard to play notes for testing the patch

Link options

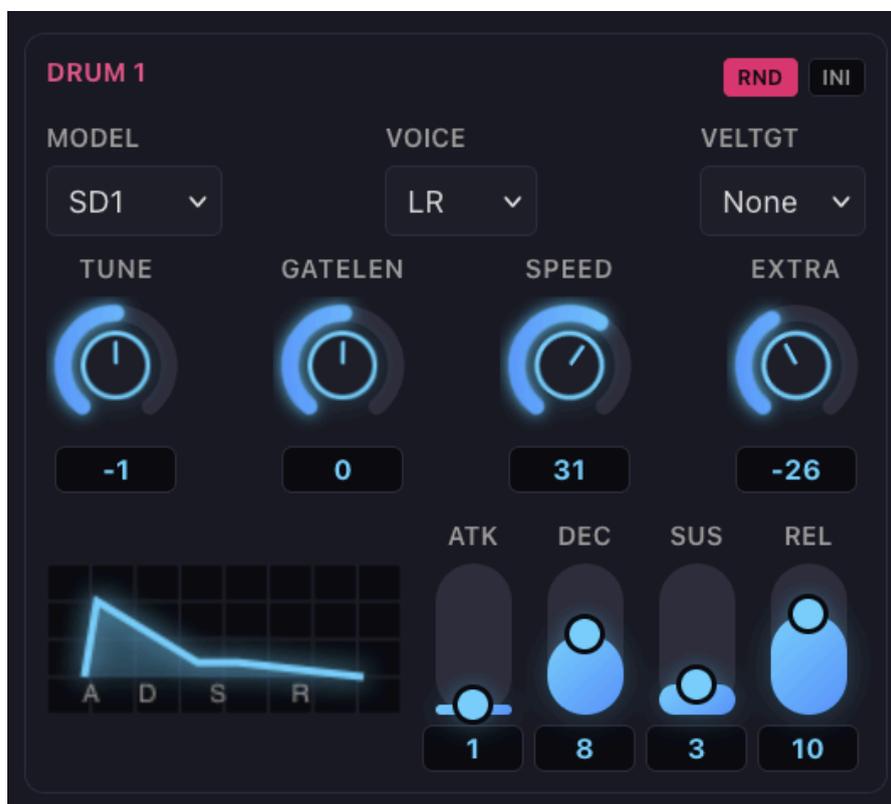
- Use "Link Stereo" to link a single oscillator with its stereo counterpart on a neighboring zetaSID when the Chief has Polyphony mode set to "Stereo"
- Use "Link OSCs" to link all three oscillators on one stereo side of the patch

Sections and panel use

- Click any section name to scroll directly to that section, e.g. Filter
- Use the randomize and initialize buttons next to section names to randomize/initialize only that section
- Use the randomize and initialize buttons on each panel (e.g. OSC1 LEFT) to randomize/initialize only that part of the patch

Tips

- Save early, save often - you can always download nice-sounding patches as .syx files, especially before making major changes
- When experimenting with randomization, enable "Transmit after RND/INI" to automatically send the patch SysEx to hardware after each randomization operation
- Remember that you can randomize individual panels - e.g. drum voices - by clicking the RND buttons in the individual panels, allowing you to build a custom drum kit by randomizing individual drum sounds until you find ones you like:



APPENDIX C: Firmware updates

You can either update a single module or automatically update all modules on your phybus network from your zetaSID!

For both cases, prepare an SD card and enter bootloader mode first:

- Either format a microSD card as FAT32 filesystem or delete the previous firmware folder.
- Download the newest modular firmware zip bundle from www.midiphy.com.
- Unpack the firmware bundle zip file into the root directory of the microSD card. The **/firmware** directory now contains the latest firmware version for all modules.
- Insert the microSD card into the card slot of the zeta module.
- Power up the module with the key held down.

In bootloader, to update a single module with a specific firmware:

- Choose **Flash App**.
- Select the appropriate firmware file.
- Press the key to start the update procedure.

In bootloader, to automatically update all modules on a phybus network:

- Choose **Update All**.
Now you can browse the complete list of modules, including the current firmware versions and (if applicable) to which version each module will be updated.
- Choose **Proceed** to start the automatic mass update process.
Each module will be updated and rebooted in turn.
The local module will be updated last (if applicable).
Larger phybus networks may require around five minutes to update.

Red LEDomes indicate that the flash process is in progress, all modules will reboot automatically after flashing.

During an ongoing flash process, do not remove the power supply, the microSD card or any cables before the process completes.

APPENDIX D: Acknowledgements

Many thanks to:

- Thorsten, who created MIDibox and the original MBSID sound engine
- Hermit, who created the SID emulation engine
- All MBSID v2 patch contributors: TK., Chiptraxxx, Pingosimon, Smithy.
- All current and future users of zetaSID, who made this device possible and ensure continuous development. You know who you are!

