ENZO X

MANUAL v1.2.2

MORE THAN LOGIC. UNITING ART + ENGINEERING.


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01 - OVERVIEW

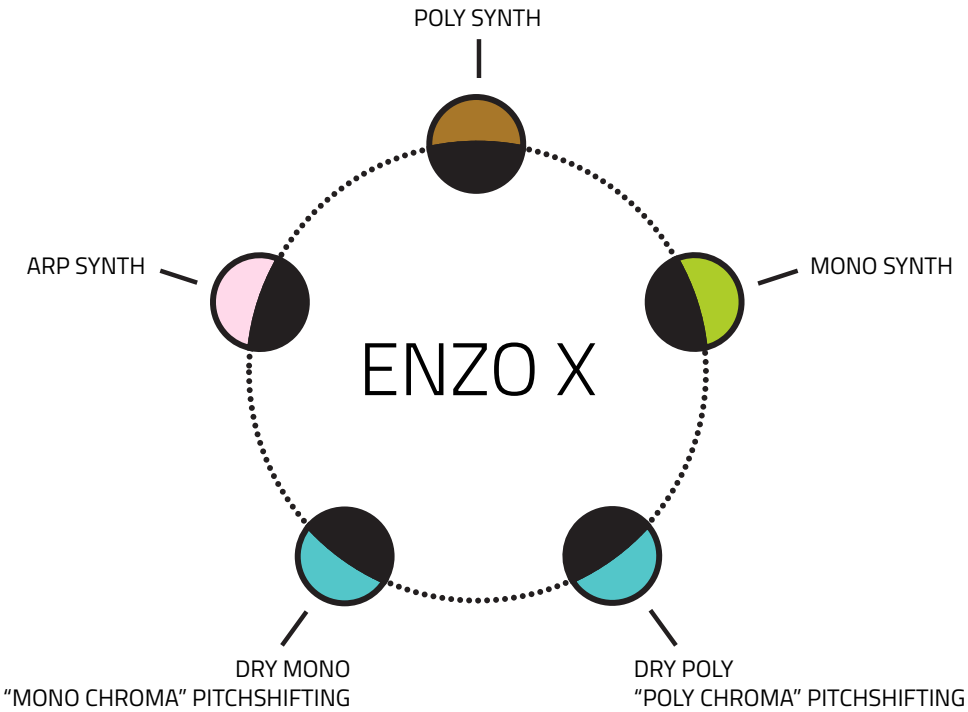
ENZO X

ENZO X IS A MODULAR INSTRUMENT SYNTHESIZER WITH ANALOG AND DIGITAL SYNTH HERITAGE, ADVANCED PROCESSING AND HIGH PERFORMANCE SIGNAL PATHS.

UNVEIL THE UNIVERSE WITHIN

Enzo X is a supernova expansion from the original Enzo into the highest quality and most flexible polyphonic synthesizer ever created in a pedal format (with no pickup installation required). All of our passion for pro audio has made it into both the algorithms and hardware performance of this pedal. Enzo X combines **5** synth modes and incorporates those into a modular system UI/ architecture from both award winning LVX and MercuryX pedals. Including: **6** polyphonic voices (each voice includes a set of 2 oscillators, filter, filter envelope, amplifier envelope) + **3** reverbs are adapted from Mercury X (Prism algorithm) + **5** Drives (including Bitcrush) + **full stereo 2.5** second Delay + **5** modulation types. To make this complex system immediately intuitive to navigate, we again leveraged the simple and easy to use UI first developed for LVX. Exploring the factory presets (and pressing the **HOLD MODIFIER**) will be your gateway into experiencing the power and flexibility within this instrument. As you discover all of the new ways to create with Enzo X, your own sonic visions will be unveiled.

Enzo X features **5** different synth modes: **Poly Synth, Mono Synth, Arp Synth** plus **2 "Poly Chroma" Dry Modes** (from LVX), mono pitch shifting and poly pitch shifting See SECTION 9 for details.

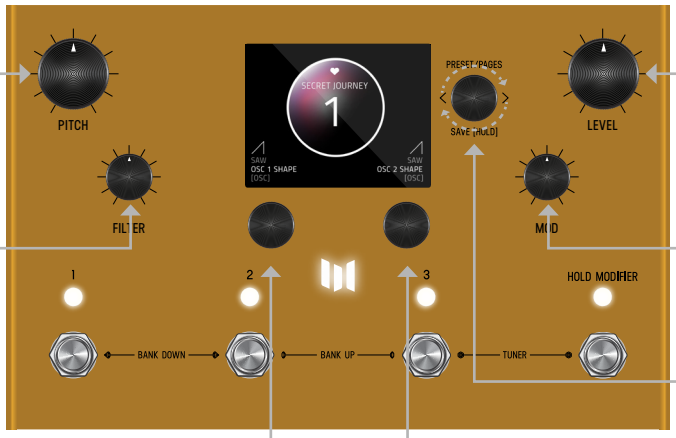


3 MAIN CONTROLLERS: C1, C2, C3

When using Enzo X, 3 knobs are your main navigation controllers: **C1, C2, C3.**
The other four knobs are your top level controls for PITCH, FILTER, MOD, and LEVEL.

PITCH - Selects the base pitch in semitones relative to the input signal. PG. 14

FILTER - Sets the filter's cutoff frequency. This parameter has a central role in determining how bright or dark the sound is.



LEVEL - Controls the overall output level of the Oscillator section. PG. 15

MOD - Sets the amount of pitch change when used in combination with MOD Speed. PG. 15

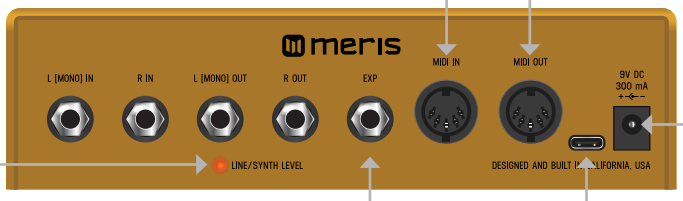
CONTROLLER 3 (OR C3)

CONTROLLER 1 (OR C1)

CONTROLLER 2 (OR C2)

7 HIGHLIGHTED FEATURES

BACK PANEL CONNECTIONS



5 PIN DIN MIDI I/O JACKS

POWER SUPPLY
9VDC center-negative power and at least 300mA of current to the 2.1mm power input required.

LINE/SYNTH LEVEL
Indicator LED is lit when enabled.

EXPRESSION PEDAL JACK
Realtime control of multiple parameters simultaneously.

USB-C
Used to connect to computer for firmware updates only.

INPUT SETUP

GUITAR/BASS SETUP

Enzo X tracks incoming signal best when your guitar/bass is in tune. To activate the tuner, press and hold Footswitch **3 + 4** simultaneously. Setting the reference frequency (REF) for the tuner here also sets the reference frequency for the Enzo X synth engine as well. After you're finished tuning, press any footswitch to return back to the Preset Page.

When implementing Enzo X within a pedalboard context, it is recommended to have any reverb/delay/modulation pedals sequenced after Enzo X, as the Mono Synth, Poly Synth, and ARP modes are designed to track any/all input Enzo X receives. Placing Enzo X at the very beginning of your signal chain is the best place to start, particularly when auditioning for the first time.

NOTE: When using Enzo X with Guitar/Bass, please keep in mind that the Mono Synth mode is designed specifically for tracking single notes. The Poly Synth and ARP modes conversely are designed for tracking full chords.

For bass players, a handful of Enzo presets are designed and included to get you up and running as good starting points for exploration. Each of these presets begin with the prefix "BASS" in the title. When designing your own bass presets, it is important to experiment with the Note Persist parameter (within Amp Env). The Note Persist parameter is a fine adjustment for the way Enzo X listens to your incoming signal and translates the natural volume of your playing to a synthesized note. In general, higher values equate to longer, sustained notes and shorter values correspond to tight tracking of the incoming volume of your playing.

LEGACY ENZO SOUNDS: For those familiar with the original Meris Enzo, the Enzo X also includes three presets from the sounds of the original pedal. These presets are labeled with the prefix "OG" which indicates it is one of the original Enzo presets.

SYNTH SETUP

Using a synthesizer, you can choose to control Enzo X using either the L / R Inputs or via MIDI connection (connecting the MIDI OUT from a synthesizer to the MIDI IN on Enzo X). When connecting to Enzo X via ¼" patch cable, you will have access to all of Enzo X's features including Dry Mono and Dry Poly mode. You can also connect a MIDI cable from the MIDI Out jack of your keyboard to the MIDI In jack on Enzo X, controlling Enzo X using MIDI Note On and Off messages, as well as Pitch Bend and Modulation control. (Detailed information about MIDI NOTE IN within SECTION 16)

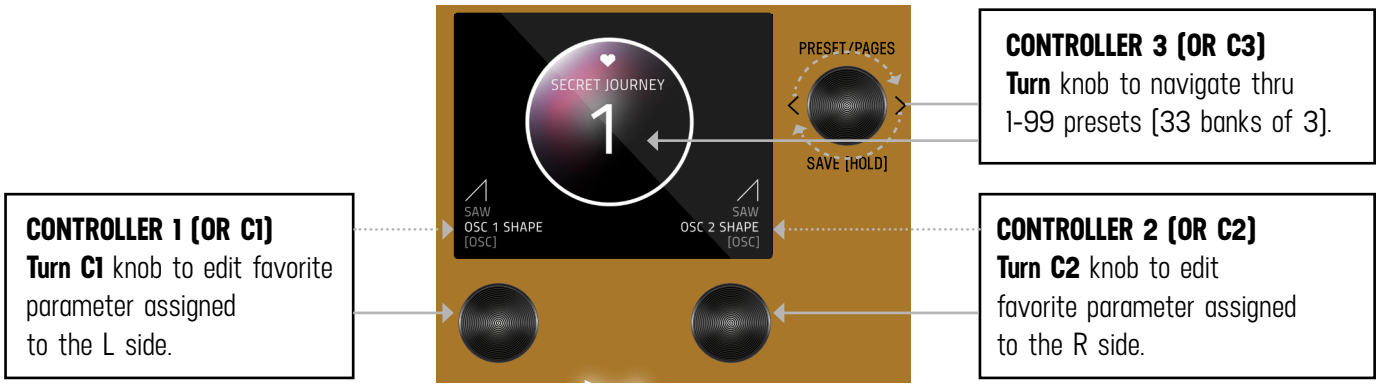
WIND/STRING/VOICE/OTHER SETUP

Enzo X is capable of tracking a variety of input sources. If your instrument is strictly mono (ex. brass, woodwinds, vocals, etc), then it is best to make sure the preset you're using is in MONO SYNTH or DRY MONO modes. These modes are designed with mono input in mind, and Enzo X will track best in these modes for your instrument.

On all presets, you can quick-press **C3** and change the OSC - MODE to MONO SYNTH or DRY MONO within the OSC edit page. Every time you cycle power on Enzo X, the OSC - MODE parameter will be the first parameter seen when accessing the Edit pages.

02 - PRESET PAGE (GRAPHIC VIEW)

When you first power up Enzo X, you will enter the Preset Page. By default, Enzo X is shipped in "GRAPHIC VIEW". In GRAPHIC VIEW, 3 knobs are your navigation controllers: **C1, C2, C3**. The Preset Page consists of a preset bubble that contain the name and number. 2 FAVORITE PARAMETERS are controlled by **C1** and **C2** (located directly above the controllers).
(You can assign your favorite parameters per preset, to either the L or R side. Changes of the 2 favorited parameters are located in the SAVE AS PAGE. Details ahead.

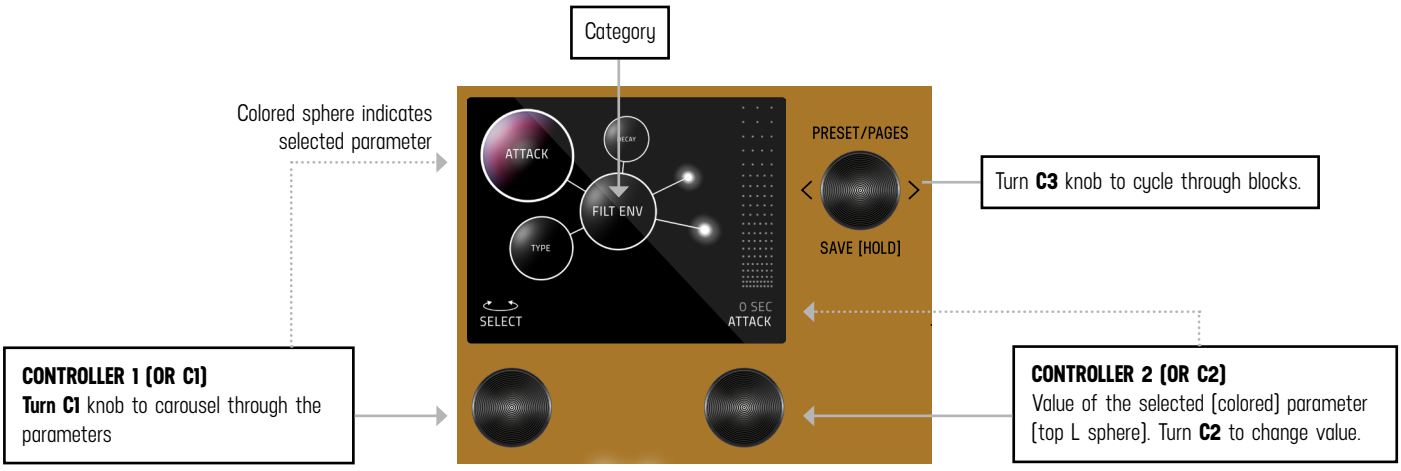


NOTE: GRAPHIC VIEW is designed to focus on 1 block and/or 1 parameter at a time per preset. (You have the option to switch to "TEXT VIEW" in GLOBALS -> EDIT PAGE. Favorite Parameters are also available in TEXT VIEW.

03 - EDITING (EDIT PAGE IN GRAPHIC VIEW)

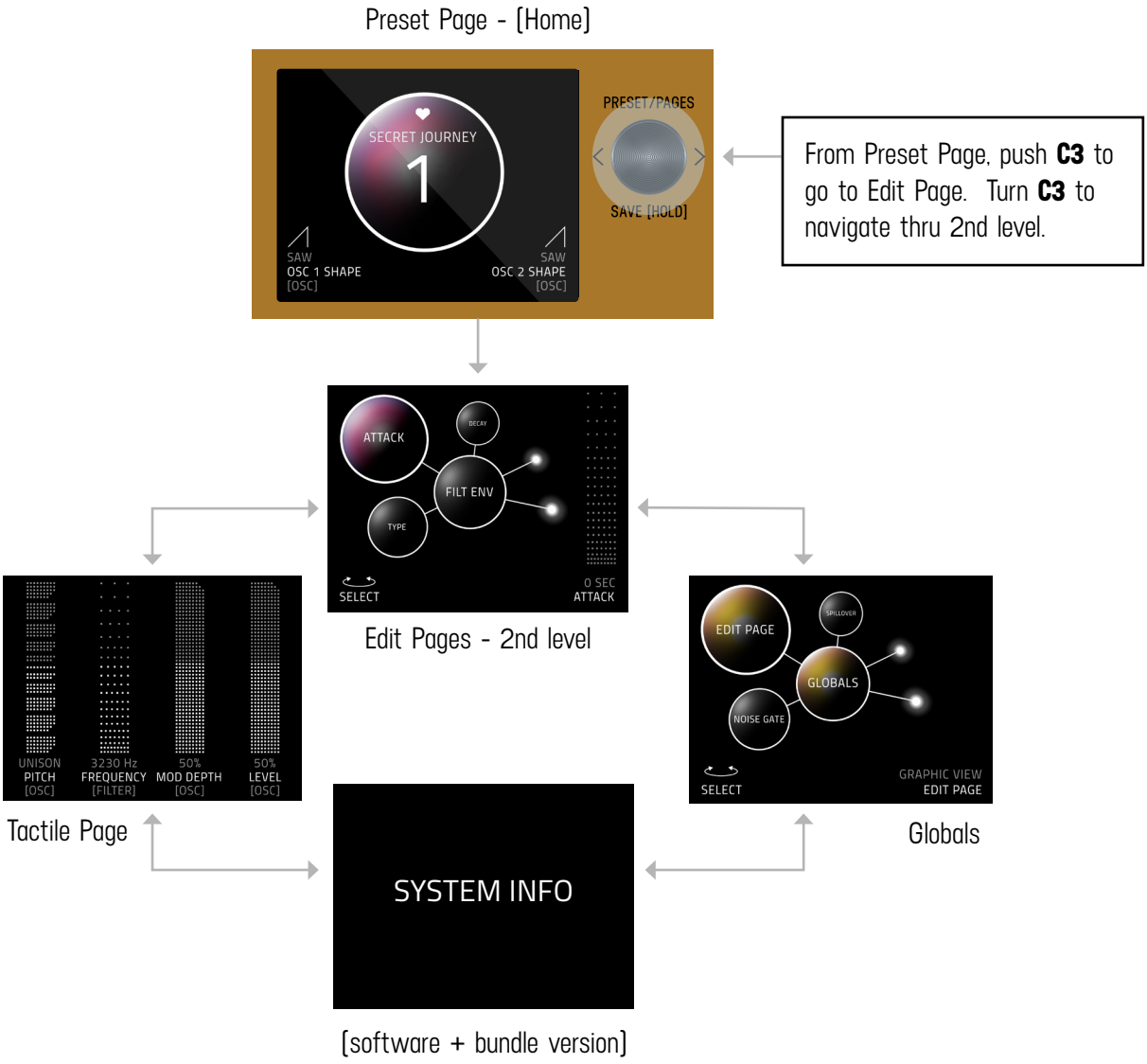
EDIT PAGE

From the PRESET PAGE, push **C3** to enter EDIT PAGES. The EDIT PAGE is where you select categories and change parameters within each preset. The middle bubble is your category. **Turn C3** to cycle through categories. **Turn C1** knob to carousel through the parameters. The colored bubble is your selected parameter within each category. **Turn C2** to edit the selected parameter.



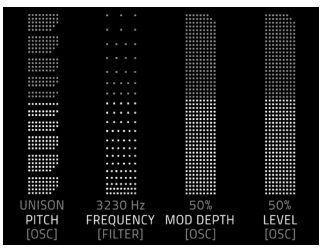
UI MAP - (IN GRAPHIC VIEW)

From the PRESET PAGE (home), push **C3** to navigate into the EDIT PAGES (2nd level). The 2nd level, consists of EDIT PAGES, GLOBALS, SYSTEM INFO and TACTILE PAGE that wrap around when turning **C3**.



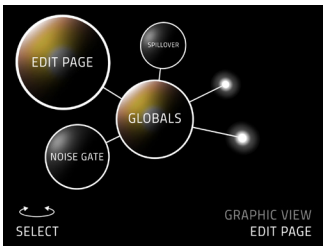
TACTILE PAGE

Turn knobs for PITCH, FILTER, MOD or LEVEL any time while editing, and the Tactile Pop-Up View (for detailed values) will temporarily show. (You can also turn "OFF" or disable the Tactile Pop-Up View in Globals) To have the TACTILE PAGE in persistent view, push **C3** from PRESET PAGE, then turn **C3** L from EDIT PAGE.



GLOBALS

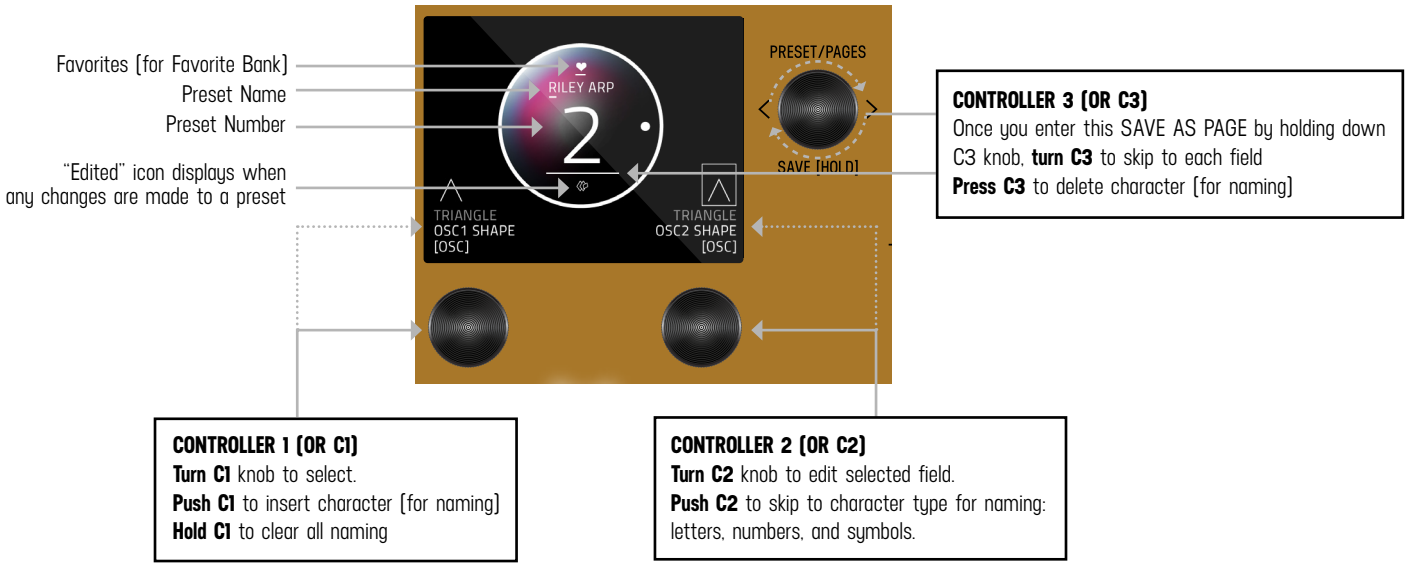
Globals is located at the end of the Edit Page, after you cycle thru all categories. A shortcut to Globals is to start from Edit Page and turn **C3** L. Globals is before System Info. Globals carousels the same way as the Edit Page but will be colorized in solid gold.



04 - SAVING (SAVE AS PAGE IN GRAPHIC VIEW)

SAVE AS PAGE

Once edits are made within a preset, hold down **C3** knob to enter SAVE AS PAGE. Sphere will change color.
You can change the name, change the preset number, select/deselect if this is one of up to 3 favorite presets (for the FAVORITES BANK located before Bank 1) and assign your 2 favorite parameters on either the L or R side of the screen (located directly above **C1** and **C2**).



SELECTING FIELDS

The name edit field will always be selected first when you enter the SAVE AS PAGE. Use **C3** to select fields. You can navigate fields within the bubble and to the L and R parameter. The field selection order when turning **C3** R starting from the name field is: name -> number -> L favorite parameter -> R favorite parameter -> heart (for favorite bank).

2 FAVORITE PARAMETERS (ASSIGNABLE TO EACH PRESET)

2 FAVORITE PARAMETERS can be assigned to each preset. They are located on each side of the preset bubble, directly above **C1** and **C2**. In the SAVE AS PAGE, turn **C3** to select either the L or R field. The field will highlight as an outlined box AND a dot will appear on either side of the preset bubble to indicate which side is selected. Turn **C1** or **C2** to change parameter. HOLD **C3** to save your assigned favorite parameter.

In the EDIT PAGE, if a parameter was assigned as a FAVORITE PARAMETER, a filled in L or R dot will appear to remind which side it was assigned.

Favorite parameters can also be quickly assigned to C1 or C2 in the EDIT PAGE. The methods for quick assign of the favorite parameters are slightly different between Graphic View and Text View. In Graphic View, simply HOLD **C1** to assign the current parameter to C1 or HOLD **C2** to assign the current parameter to C2. In Text View, press and hold either **C1** or **C2** (depending if you want to assign the Left or Right Fav Param), and then turn the parameter up and down in the Edit Page that you would like to assign to the Favorite Parameter.

SAVE PRESET OR CANCEL

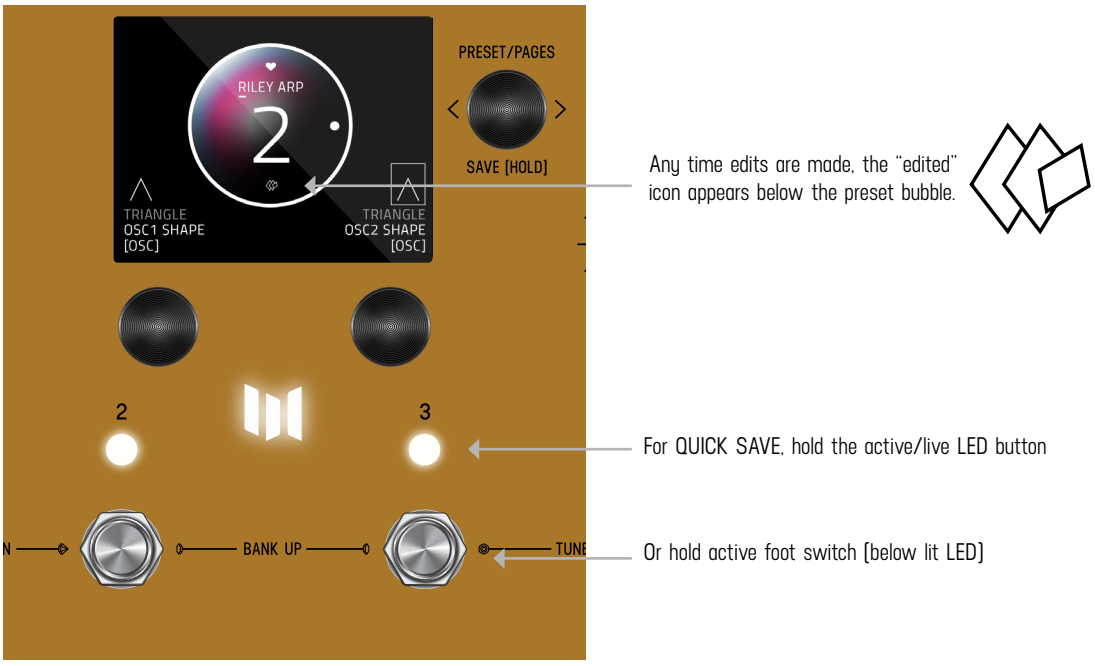
Hold down **C3** knob again to save. Or QUICK SAVE.
To CANCEL a save, press any of the four footswitches. This will exit the SAVE AS PAGE without writing over your preset.
Note: If you cancel, no edits are saved.

COPYING A PRESET

Anytime you assign a Preset to a different Preset Number + Press and Hold **C3** to save, you will automatically duplicate the Preset. If you have exited the Save As Page, Press and Hold down **C3** knob to enter the Save As Page. Turn **C3** to the right to highlight the Preset Number. Change the preset number to the copy destination. [To CANCEL a copy, press any of the four footswitches.] To proceed a copy, Press and Hold **C3** to a save a copy in the new location.

QUICK SAVE

To QUICK SAVE without changing the name or favorite status, hold the active/lit LED button or foot switch directly below. The completed save will return you to the PRESET PAGE and you'll notice the "edited" glyph will have been removed.



05 - FAVORITES BANK

We created what we call the FAVORITES bank. The purpose of the Favorites Bank is to have a shortcut access to your top 3 favorite presets without the need to navigate through banks. The Favorites Bank is located before bank 1. To jump to the Favorites Bank, **HOLD 1 + 2** footswitches. While the Favorites Bank is highlighted in the screen, use the 3 footswitches to choose which favorite preset to jump to. To bank up, PRESS **2 + 3** at the same time. To bank down, PRESS **1 + 2** at the same time. A total of 3 presets can be assigned to your FAVORITE BANK within the SAVE AS page.

HOLD **1** + **2** footswitches to jump to **FAVORITES** bank.

Any preset that is favorited, includes a heart in the preset bubble.

06 - SWITCHES OR LED SWITCHES

C3

LED Switches

Foot Switches

To navigate through the 99 presets, you can use the traditional route of hitting the first 3 foot switches. Above each of the 3 foot switches are corresponding LED switches (or small buttons) that serves the same functions ideal for desktop use. For faster navigation, use **C3** to quickly scroll through presets.

07 - MODIFIERS

Enzo X has MODIFIERS which allow automatic control of your knobs. For each Modifier, you can choose which parameter the modifier is automatically controlling, how fast the changes are happening, and how large the changes are. To get to the Modifiers Edit Page, press **C3** to enter the Edit Pages and turn **C3** to MODIFIERS (named in middle bubble).

COMMON MODIFIER PARAMETERS

SPEED: This sets how fast the Modifier completes a full cycle. LFO A, LFO B, S&H (a periodic random number generator) and the Sequencer all feature a speed parameter that can be set independently. The Envelope Modifier doesn't have a speed, but instead features Attack and Decay Time which together set how long it takes the envelope to complete its cycle.

NOTE DIVISION: Links the speed of the Modifier to Enzo X's current CLOCK tempo. When the Note Division is set, the Speed parameter is ignored and the speed is calculated as a note division of the CLOCK parameter.

ASSIGN: Each modifier is a self contained module that can automatically adjust a parameter in Enzo X. To link a modifier to a parameter, use the modifier's ASSIGN parameter. Here you'll find a list of all the available parameters you can link to the modifier including NONE for when you don't want to use the Modifier.

MIN & MAX: To set how much the Modifier changes the parameter use the Modifer's Min and Mix controls. For the Min and Max controls, the percentage relates to the current position of the parameter you are assigned to, where 100% equates to exactly where the current parameter is set at. Having the Min and Max work as a percentage of the current parameter value allows you to still control a parameter even when it is attached to a modifier. This is really useful if you like the way the modifier is working but want to make general changes on the fly by simply adjusting the parameter directly.

MODIFIER EXAMPLE - CONTROLLING THE LEVEL

Let's assign the LFO A Modifier to automatically change the synth's level.

First, turn **C3** to a "BLANK" preset. Next, press **C3** to enter the Edit Pages.
Next use **C3** to navigate to the MODIFIERS Edit Page. Here we'll use the first modifier, LFO A, to automatically change the level. Change the LFO A Speed to around 3 Hz and the LFO A Assign to OSC-LEVEL. Let's leave the other LFO A parameters alone. If you take a listen, you'll hear the output level pulsating in time with LFO A's Speed. Try changing the LFO A Div parameter to link the pulsations up with Enzo X's Clock.

BREAKDOWN OF EACH MODIFIER AND ITS PARAMETERS:

LFO A Modifier - a periodic oscillating signal generator with selectable waveshapes
Parameters: Speed, Note Division, Shape (Ramp Up, Ramp Down, Triangle, Sine, Square, 3 Steps Up, 3 Steps Down, 4 Steps Up, 4 Steps Down), Assign, Minimum, Maximum

LFO B MODIFIER - a periodic oscillating signal generator with selectable waveshapes
Parameters: Speed, Note Division, Shape (Ramp Up, Ramp Down, Triangle, Sine, Square, 3 Steps Up, 3 Steps Down, 4 Steps Up, 4 Steps Down), Assign, Minimum, Maximum

ENVELOPE MODIFIER - a note triggered envelope generator. When a note onset or pick attack is detected the envelope begins its travel from the Min to Max value at the Attack Time before then traveling from Max back to Min at the Decay Time. The Linear Shape completes this travel in a straight line and the Exponential Shape completes this travel using curved lines. The Clipped Attack shape holds the envelope value at Max for the Attack Time interval before traveling back to the Min Value at the Decay Time interval. Tip: try swapping the Min and Max values to flip the envelope shape.
Parameters: Attack Time, Decay Time, Shape (Linear, Exponential, Clipped Attack), Assign, Minimum, Maximum

SAMPLE & HOLD MODIFIER - a periodic random number generator, a new random number is generated after every cycle (set by Speed or Note Division) is complete. Use this to randomly change a parameter at a fixed interval.
Parameters: Speed, Note Division, Assign, Minimum, Maximum

SEQUENCER MODIFIER - plays back a repeating pattern with a new element generated after every cycle (set by Speed or Note Division) is complete. The pattern is created by setting 16 individual steps of equal length. Patterns less than 16 steps can be created turning the step all the way down to its minimum value which is 'Skip'.
Parameters: Speed, Note Division, Assign, Step 1 - 16

SOME MODIFIERS TIPS: Enzo X will allow you to assign multiple modifiers to the same parameter for creative control combinations. When the modifiers are assigned to the same parameter the control signals they generate are added together before modifying the parameter. This sum is automatically clipped at 100% when it gets too large.

When looking at the Assign parameter for any of the modifiers, Enzo X will only show the parameters for Categories where a processing element has been selected. If the Type is set to None, then that Category will not appear in the list of Assign parameters.

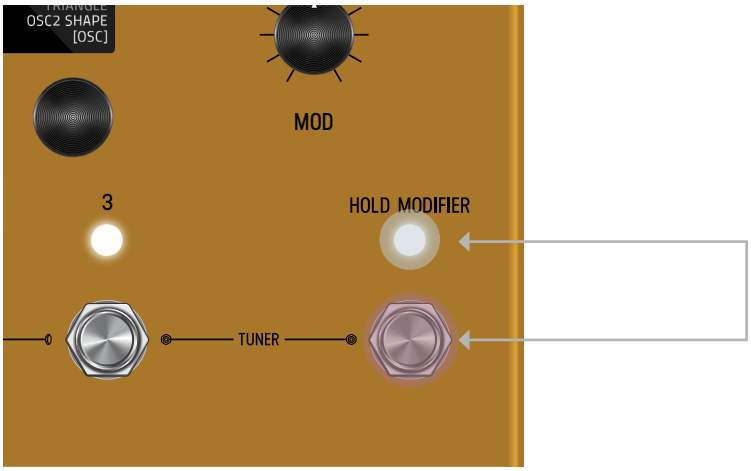
HOLD MODIFIER - a footswitch triggered envelope generator. The Hold Modifier's envelope can be triggered by the front panel footswitch, LED switch, or MIDI command. The Hold Modifier can be set to **Momentary, Latching or Tap Tempo** action per preset. The LED switch will light up to indicate when the modifier is active.

When set to Momentary, the envelope travels from the Min to Max value at the attack time while the footswitch is held. When the footswitch is released, the envelope begins to travel back down to the Hold Min at the Decay Time.

When set to Latching, the envelope travels from the Min to Max value at the attack time while the footswitch is pressed.

The envelope will stay at the Max value until the next press where it will travel back down to the Min value at the Decay Rate. The Latching mode is perfect for use as an on/off switch when assigned to the Mix parameter of a Category Type.

When set to Tap, the Hold Modifier switch functions as a traditional Tap Tempo switch that controls the predelay time.



Press either HOLD MODIFIER switch (per preset) to explore its expressive function.

08- EXPRESSION

The rear panel of Enzo X has an EXP jack which allows you to connect an expression pedal for on the fly changes of parameters. Enzo X lets you make 6 expression pedal assignments and for each assignment you can choose which parameter the expression pedal is controlling, and how much the parameter is changed at the minimum and maximum positions of the expression pedal. To get to the Expression Edit Page, press C3 to enter the Edit Pages and turn C3 to EXP PEDAL (named in middle bubble).

Expression pedal adjustments affect the parameters only when an expression pedal is connected to the EXP jack on the back of Enzo X. When a physical expression pedal is not connected to Enzo X, all EXP PEDAL assignments with the Source parameter set to EXP will be ignored.

BREAK DOWN OF THE EXPRESSION PEDAL PARAMETERS:

Source A-F: Source sets which signal is used to modify the assigned parameter. By default, Source is connected to EXP (the expression pedal). For most presets, having Source set to EXP is exactly what you want; where simply, the expression pedal modifies the assigned parameter. Setting the Source to something other than EXP is useful when you want a modifier to control a second parameter, see the example labeled 'Using Expression Source' below. Along with choosing one of the Modifiers as an alternate source, Enzo X also lets you assign incoming Mono Aftertouch messages (also known as Channel Pressure) to any parameter in the assign list. On keyboards that support Mono Aftertouch, pressing a key and then applying additional pressure sends increasing aftertouch values, which you can use for expressive control such as opening filters, increasing vibrato depth, and more.

Assign A-F: Enzo X features 6 separate parameter assignments. To link the expression pedal to a parameter, use one of the six expression pedal ASSIGN parameters labeled A through F. Here you'll find a list of all the available parameters you can link to the expression pedal including NONE.

Min & Max A-F: For each of the expression pedal parameter assignments you'll find a corresponding set of Min and Max controls also labeled A through F. Min represents the expression pedal at its minimum position (heel down), and Max represents the expression pedal at its maximum position (toe down). The percentage relates to the current position of the parameter you are assigned to, where 100% equates to exactly where the current parameter is set at. Having the Min and Max work as a percentage of the current parameter value allows you to still control a parameter even when it is attached to an expression pedal. This is really useful if you like the way the expression pedal is working but want to make general changes on the fly by simply adjusting the parameter directly.

EXPRESSION PEDAL EXAMPLE - CONTROLLING PITCH

Let's assign the expression pedal to change the pitch of Enzo X. First, connect your expression pedal to the EXP jack on the back of Enzo X.

Turn C3 to a BLANK preset. **Press C3** to enter the Edit Pages. **Turn C3** to the EXP PEDAL Edit Page. Change the first expression pedal assignment, EXP A Assign, to OSC-Pitch. This is shorthand for the parameter where the first word stands for the Category

(here we are targeting the Oscillator) and the second word stands for the actual parameter name (the Oscillator's Pitch). Now, let's change the EXP A Min to 100% and EXP A Max to 0%. Since we currently have the pitch parameter set to Unison, 100% will equal zero pitch shift, and 0% will correspond to the end of the knob range, -24, which is a pitch shift of two octaves down. Since the Min parameter presents heel down and the Max parameter represents toe down on the expression pedal, moving the expression pedal will smoothly move between no pitch shifting and two octaves down of pitch shifting.

EXPRESSION PEDAL EXAMPLE - USING EXPRESSION SOURCE

Let's create a preset in Enzo X where a single LFO controls both the Level and Filter Envelope Amount. This will demonstrate how the Expression Source parameter complements the Modifier section.

Turn C3 to a BLANK preset. **Press C3** to enter the Edit Pages. **Turn C3** to the MODIFIERS Edit Page. We'll use the first modifier LFO A. Change LFO A Assign to OSC-LEVEL, and the LFO A Speed to around 4 Hz. If you take a listen, you'll hear the output level puslate in time with LFO A.

To link the Filter Envelope Amount to the same modifier as Oscillator Level, we'll use an Expression Source parameter. **Turn C3** to the first EXP PEDAL Edit Page. Set EXP SOURCE A to LFO A and EXP ASSIGN A to FLTR-FENV. Let's leave the other EXP A parameters alone. If you take another listen, you'll now hear the filter follow the same pulse as the output level.

09 - OSCILLATORS

The OSCILLATORS (abbreviated to OSC in the UI) are the heart of Enzo X. These provide the central sound of the synthesizer which gets further sculpted by the filters, envelopes, and processing elements.

COMMON PARAMETERS:

PITCH (FRONT PANEL CONTROL) - Selects the base pitch in semitones relative to the input signal. In Mono/Poly/Arp modes, Pitch transposes Enzo X's synth relative to the input note. In Dry modes, Enzo X will pitch shift your incoming signal directly.

OSC1 SHAPE/OSC2 SHAPE - Using these controls, you can independently set the Wave shape (Saw, Triangle, Square) for each of the two oscillators in the voice. Each Wave shape creates a unique timbre/texture for the oscillator, and acts as the base sound for building a synth patch on Enzo X.

SAW: A classic buzzy, bright synth waveshape that excels as a lead or bass tone. Pair this waveform with the ladder filter for iconic analog synth sounds in any genre/era

TRIANGLE: As the smoothest of the three waveforms, the Triangle wave provides a gentle tone that mixes well with other oscillators. Try adding the Triangle wave to OSC2 for a deep sub bass tone, or on its own for a warm pad in Poly Synth mode.

SQUARE A bright and hollow waveform with a distinct nasal quality. Use this synth waveform in Mono Synth mode to recreate woodwind-like sounds.

OSC2 SHIFT - Detune control for oscillator 2, use this to thicken the overall sound of the preset

OSC1 GAIN / OSC2 GAIN - Adjusts individual volume of each oscillator [0–100%]. Try using the Modifiers and Expression Source to create interesting fading between the two oscillators.

OSC1 WIDTH / OSC2 WIDTH – This parameter works in conjunction with the OSC1 SHAPE and OSC2 SHAPE controls. If the SQUARE shape is selected, it adjusts the pulse width of the waveform. If SAW or TRIANGLE shapes are selected, the WIDTH parameter gradually adds harmonics to square off the original shape. To set up classic square wave pulse width modulation [PWM], go to the Modifiers page and set LFO A ASSIGN to OSC1 WIDTH and LFO B ASSIGN to OSC2 WIDTH. Then adjust the LFO speeds and wave shapes to taste. **NOTE:** The OSC2 WIDTH will be automatically disengaged if XMOD is set above 0%. When OSC2 WIDTH is active, setting the XMOD to a value greater than 0% will smoothly disengage OSC2 WIDTH

XMOD - Introduces the ability to cross-modulate OSC2's waveform with the waveform from OSC1. The value of XMOD determines the amount that OSC1 modulates the frequency of OSC2. Cross modulation is especially helpful for creating metallic, FM tones. Try setting OSC1 Gain to "0%" while adjusting XMOD to clearly hear the cross modulation effect. XMOD and OSC2 WIDTH are mutually exclusive, setting XMOD above 0% will smoothly disengage the OSC2 WIDTH [see OSC1 WIDTH / OSC2 WIDTH for details].

MOD SPEED - Sets the speed of a dedicated pitch modulation just for the Oscillators [in Hz]. Used in combination with MOD DEPTH to create a vibrato effect.

MOD DEPTH (FRONT PANEL CONTROL LABELED MOD)- Sets the amount of pitch change when used in combination with MOD Speed. At low levels the MOD Depth will create a gentle warble, at high values create a deep, sea-sick pitch shift excellent for special FX patches.

MOD RAMP - Sets the time it takes for the Oscillator's pitch modulation to reach maximum depth after a note has been detected.

GLIDE - Smoothly bends between notes creating a portamento effect. The amount of Glide determines the speed of the portamento.

LEVEL (Front Panel Control) - Controls the overall output level of the Oscillator section, establishing the foundation of your synth's sound. Adjusting this parameter influences how strongly the signal drives subsequent processing, including the Drive, Modulate, and Ambience categories of processing elements.

SYNTH MODES:

Enzo X features **5** synth modes, the original 4 modes from Enzo, plus a new mode, the Dry Poly mode, adapted from the LVX's Poly Chroma.

MONO SYNTH - Single voice synthesizer where only one note plays at a time. Provides fast response and accurate pitch bends for intricate lead work. Ideal for leads or bass lines.

POLY SYNTH - Multi-voice synthesizer. Enzo X includes 6 voices maximum. Each voice includes a set of 2 oscillators, filter, filter envelope, amplifier envelope. There are a maximum of 6 voices that can be played concurrently. The Polyphonic mode detects every note in your chord and assigns a voice to each note. In this mode, Filter and Amplitude envelopes are linked across all voices, making the Poly Synth ideal for multiple notes to sound simultaneously for chords.

NOTE: when using MIDI IN to generate note messages, the Filter and Amplitude envelopes will trigger separately for each synth voice, making for more polyphonic synth possibilities.

ARP (ARPEGGIATOR) SYNTH - The Arpeggiated mode is designed to create a unique texture beneath your playing as it sequences through notes in a chord automatically to create rhythmic, repeating patterns. Rather than building a set sequence, the arpeggiator plays the notes back it recognizes from your input. When you play a single note, the arpeggiator plays the root note along with harmonics it detects. When you play a chord, the arpeggiator processes the notes in one of four ways depending on the ARP Mode parameter: in Enzo mode, it plays the notes in order of loudness, or you can reorder the notes in ascending (Up), descending (Down), or alternating (Up/Down) order. The ARP Size parameter lets you select the number of steps in the arpeggio, ranging from 1 to 16, while the ARP Oct parameter sets the number of octaves the arpeggio spans, adjustable from 1 to 3 octaves. This mode also includes a Cycle Latch control, which, when enabled, ensures that a new arpeggio will only begin after the current one completes its full cycle. The ARP's Note Division parameter links the speed of the arpeggio to a multiple of the Enzo X's current CLOCK tempo.

NOTE: Using ARP while connected to a MIDI controller sending MIDI NOTE messages, the ARP Size parameter will not automatically sync to the number of notes engaged via MIDI NOTE messages. Instead, the ARP will play the number of notes received via MIDI NOTE message, and any additional steps in the arpeggiator will be counted as "rests."

DRY MONO - Synth bypassed plus mono pitch shifting. The Dry mode replaces the Synth with a classic pitch shifter featuring mono detection. This mono pitch shifter features a fast attack and clear high frequencies. Set the Dry Blend to zero for a fully pitch shifted sound.

DRY POLY - Synth bypassed plus polyphonic pitch shifting from LVX. This mode features a fully polyphonic chromatic pitch shifter. This mode perfectly pitch shifts your input audio no matter how complicated the chords. Set the Dry Blend to zero for a fully pitch shifted sound.

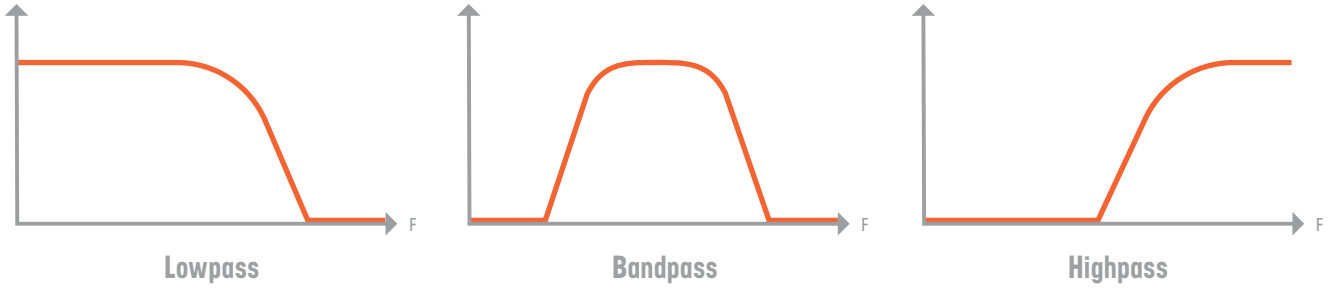
10 - FILTERS

Enzo X features **3** Filter Types: **Ladder** and **State** Variable from the original Enzo, plus a new filter type, **Twin**, developed just for Enzo X. Also new for Enzo X is a Noise parameter for each filter mode, allowing you to inject noise into the filter for a wide range of sonic textures.

COMMON PARAMETERS:

FREQUENCY (FRONT PANEL CONTROL LABELED FILTER) - Sets the filter's cutoff frequency. This parameter has a central role in determining how bright or dark the sound is.

TOPOLOGY - This selects the filter type. The **3** types of filters are Lowpass (where high frequencies are cut), Highpass (where low frequencies are cut by the filter) and Bandpass (where a narrow band of frequencies are emphasized by the filter, cutting both lows and highs).



RESONANCE/BANDWIDTH - Emphasizes a narrow band of frequencies around the cutoff frequency. High levels of resonance will give you a sharp and aggressive filter, whereas lower levels of resonance will create a smooth filter response.

FILTER ENVELOPE AMOUNT (FENV AMT) - Sets the amount of modulation from the Filter Envelope to the Filter's cutoff frequency. Positive settings move the filter's cutoff frequency higher than what is set by the FREQUENCY parameter as the envelope increases and negative settings move the Filter's cutoff frequency lower. Setting Filter Envelope Amount to 0% will remove the Filter Envelope from the Filter.

NOISE - Sets the output level of the white noise generator that gets mixed in with the signal from the oscillators.

FILTER TYPES:

LADDER - our unique Meris designed 24 dB per-octave resonant filter. A classic sound that excels in every application, but pairs especially well with the Mono Synth mode
Parameters: Frequency, Resonance, Topology, Noise, Filter Envelope Amount (FENV AMT)

STATE VARIABLE - the State Variable filter is a 12 dB per octave filter and offers another great flavor of smooth filtering to compliment the Ladder Filter. The gentler roll off lends itself to atmospheric pad sounds.
Parameters: Frequency, Bandwidth, Topology, Noise, Filter Envelope Amount (FENV AMT)

TWIN - a Dual Parallel filter creating 2 resonances that sweep across the frequency space. The Spread parameter sets the distance between the two peaks. When Spread is set to 100%, the parallel filters perfectly overlap. When turning Spread to zero, you can hear the secondary filter sweep down towards 0 Hz.
Parameters: Frequency, Bandwidth, Topology, Spread, Filter Envelope Amount (FENV AMT), Noise

11 - ENVELOPES

A common feature of synths are envelopes. Envelopes are time varying curves that start with each new note and control how the sound changes over time. In Enzo X there are two envelopes The Filter Envelope (FILT ENV) and the Amplitude Envelope (AMP ENV). The envelopes in Enzo X are the 4 stage ADSR type, which feature four distinct sections: Attack, Decay, Sustain and Release. This offers expanded control over what the original Enzo offered, which only featured two stages: Attack and Decay.

The Filter Envelope is used to vary the frequency of the Filter and interacts with the Filter controls. In the Filter Edit Page, Filter Envelope Amount (FENV AMT) sets how much the Filter Envelope can affect the filter frequency, and the Filter control sets the start frequency before the envelope starts. On the FENV AMT Edit page you can also change the envelope type from ADSR to Envelope Follower. The Envelope Follower is used to create the classic auto wah type sound.

The Amplitude Envelope is used to vary the output level of the oscillators and is useful for creating a wide range of amplitude effects from slow volume swells to plucky pulses. The Amplitude Envelope is also active in Dry Mode allowing you to create some very interesting blends of sounds halfway between a guitar and a synth. The Amplitude Envelope Edit Page also features the Note Persist parameter. The Note Persist parameter is used to shape the way Enzo X follows the natural volume curve of your guitar as it translates it to the synthesized note. More simply put, to make the synthesized note last longer, turn up the Note Persist.

Note Persist is not applied when controlling Enzo X using MIDI IN to synth notes.

COMMON PARAMETERS:

ATTACK - The amount of time for the Envelope to ramp up to its peak value (in seconds). Shorter Attack means that when a note is played, the envelope will quickly snap to the peak value. Longer Attack values will gently swell to the peak value. For example, when playing a note with an Amplitude Envelope with a 2 second Attack, the note will begin with no volume, and slowly swell to its loudest point over 2 seconds.

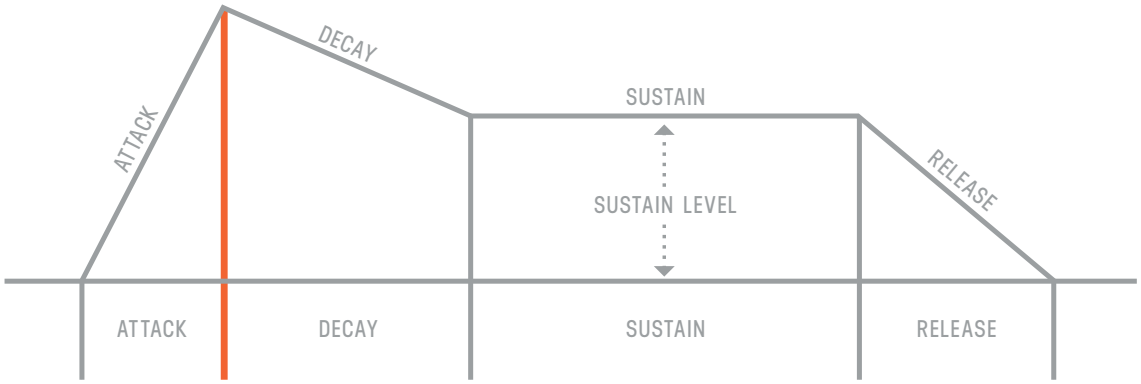
DECAY - Once an envelope peak is reached (after the Attack), the envelope then smoothly ramps down to the Sustain Level value. Decay is the amount of time it takes for the envelope to ramp down from the peak envelope to the beginning of the Sustain (measured in seconds). To experiment with the Decay parameter, using the Amplitude Envelope, set the Attack to "0 seconds," and the Sustain Level to "0%." You have now created a synth "stab" patch, where the decay determines the length of your "stabs."

SUSTAIN LEVEL - Sets the overall level from 0% to 100% of the Sustain portion of the envelope.

SUSTAIN - The amount of time in which the envelope is held at the SUSTAIN LEVEL value. SUSTAIN comes after the ATTACK and DECAY time, and is followed by RELEASE. Sustain is not applied when controlling Enzo X using MIDI IN to synth notes. Instead, the Sustain time is determined by how long the note is held via the MIDI source (eg. how long a note is held down on a MIDI keyboard).

RELEASE - The amount of time it takes for the envelope to ramp down from the level set by the Sustain Level parameter to

minimum (in seconds). To create a synth "pluck" style patch, using the Amplitude Envelope, set the Attack, Decay, and Sustain values to "0 seconds". Now set the release to 2-3 seconds in length. With this patch, every note the Enzo X receives will give an equal-length decay, reminiscent of a harp or open-strummed guitar.



12 - CLOCK

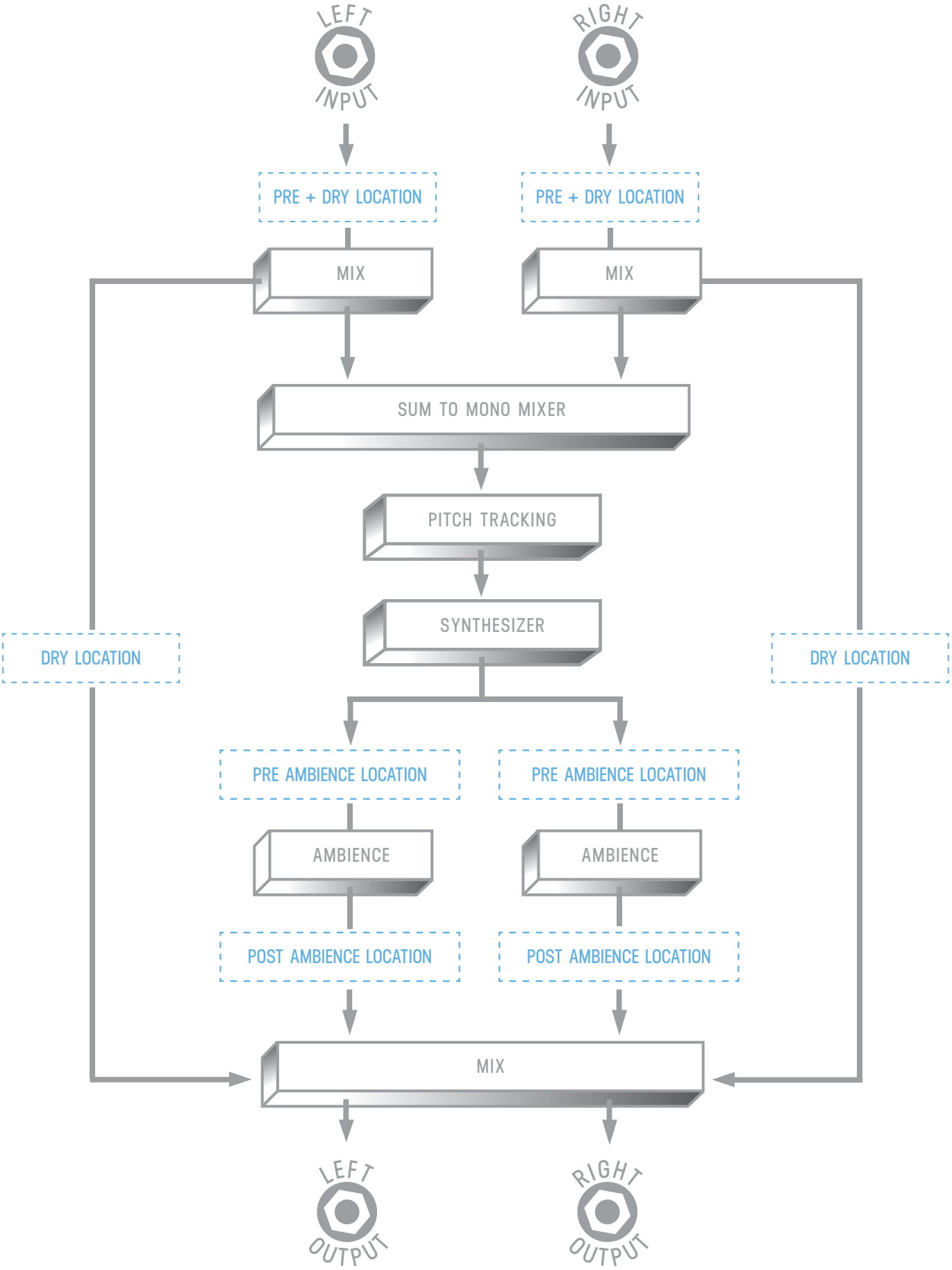
The Clock is the central timing element in Enzo X, setting the tempo for the Arpeggiator, the Echo (from the Ambience category), and all processing elements and modifiers with a 'Note Div' parameter. Most presets default to using their own tempo, but a global tempo can be adjusted on the GLOBALS page.

TEMPO - The main timing of Enzo X, can be expressed in either Seconds or BPM by changing the TEMP DISP parameter in the GLOBALS

MIDI CLOCK - This parameter lets you ignore the incoming MIDI Beat Clock on a per preset basis. For most situations, you can just use the Global to either accept or ignore incoming MIDI Beat Clock, but if you need more control, then use this parameter. This parameter has three settings: "USE GLOBAL", "FORCE LISTEN', and 'FORCE IGNORE'. 'USE GLOBAL' sets the preset to follow whatever the Global MIDI Clock parameter is set to, all of the factory presets in ENZO X default to this setting. 'FORCE LISTEN' lets you set this preset to always listen to MIDI Beat Clock and 'FORCE IGNORE' lets you set the preset to always ignore MIDI Beat Clock.

13 - CATEGORIES AND ELEMENTS

The processing elements are grouped into 4 categories. The categories are: **Drive, Ambience, Modulate,** and **Mix**.
IMPORTANT: the Modulation Category is separate from the front panel Mod knob which directly controls a special LFO built into the OSCILLATOR section. In Enzo X, the Drive and Modulate elements can be placed right at the inputs, in the dry path, after the Synth, and after the Ambience, with locations indicated in light blue. When The Drive and Modulate categories are in the same location, the processing order is Drive first, followed by Modulate. The Ambience and Mix Categories are immovable and fixed in the locations shown in the graphic in the next page.


LEFT
INPUT
RIGHT
INPUT
PRE + DRY LOCATION
PRE + DRY LOCATION
MIX
MIX
SUM TO MONO MIXER
PITCH TRACKING
SYNTHESIZER
DRY LOCATION
DRY LOCATION
PRE AMBIENCE LOCATION
PRE AMBIENCE LOCATION
AMBIENCE
AMBIENCE
POST AMBIENCE LOCATION
POST AMBIENCE LOCATION
MIX
LEFT
OUTPUT
RIGHT
OUTPUT

DRIVE CATEGORY:

VOLUME PEDAL - the volume pedal element on the Enzo X comes alive when connected to the modifiers. control the Balance to provide continuously shifting panning of your synth. The Comp parameter gives you control of a stereo version of the compressor from the original Enzo. The compressor is disabled when the Comp parameter is at minimum.
Parameters: Level, Balance, Comp

TUBE - the Tube Preamp provides a mid boost with controllable gain and level. The Tube Preamp is perfect for warming your Synth sounds as well as keeping the dynamic range under control.
Parameters: Parameters: Gain, Level

TRANSISTOR - the Transistor Preamp emphasizes high frequencies, perfect for adding clarity to dull audio signals
Parameters: Parameters: Gain, Level

OP-AMP - the Op-Amp Preamp gives you a broadband boost with de-emphasized low end, a good all purpose preamp
Parameters: Parameters: Gain, Level

BIT CRUSHER - a stereo bit crusher adapted from Ottobit Jr., use the bit crusher to replicate the primitive synth tones from your favorite 80's and 90's gaming consoles
Parameters: Sample Rate, Bit Depth, Level

AMBIENCE CATEGORY:

ECHO - Stereo Parallel Digital Delay with Half Speed. The maximum delay time is 2.54 seconds of stereo delay operating at 48kHz, with half speed enabled you get 5.08 seconds of delay per side at 24 kHz. Try attaching an LFO Modifier to the Half Speed parameter for tempo synced timing and pitch changes. The High and Low Eq parameters change the tonal character of your delays by cutting frequencies within the feedback path. High attenuates the upper harmonics of each repeat, letting you tame brightness and create darker, more atmospheric echoes. Low, rolls off the low end, removing rumble and tightening the low frequency response for a cleaner, more focused delay tail. Because both filters sit inside the feedback loop, their settings compound with each successive repeat.
Parameters: Left Div, Right Div, Feedback, Half Speed, Lows, Highs, and Mix

SMALL / MEDIUM/ LARGE PRISM - From MercuryX are 3 new streamlined reverbs born out of the Prism Structure.
The Small Prism adds a touch of room sized reflections. The Medium Prism creates a mid-sized hall space.
And Large Prism is a wide expanse enveloping your sound without being overwhelming.
Parameters: Decay, Mod, Lows, Highs, Mix

MODULATE CATEGORY:

CHORUS - True Stereo Chorus perfect for adding space and movement to your preset. Use the Note Div parameter to select the note division. When Note Div is Off, the Speed parameter is used to set the speed. When Note Div is set to any other note division, the note value is used with the CLOCK Tempo to set the speed.
Parameters: Speed, Depth, Note Div, Mix

FLANGER - A wide ranging Flager with selectable modes taking you from a subtle vintage shimmer to a deeply notched inverted comb filter. Try setting the Speed to Off and use a Modifier to drive the Depth for custom creations. When Note Div is Off, the Speed parameter is used to set the speed. When Note Div is set to any other note division, the note value is used with the CLOCK Tempo to set the speed.
Parameters: Speed, Depth, Note Div, Feedback, Mode, Mix

VIBRATO - Classic voiced pitch modulation. Excellent for adding deep pitch modulation after the ambience. When Note Div is Off, the Speed parameter is used to set the speed. When Note Div is set to any other note division, the note value is used with the CLOCK Tempo to set the speed.
Parameters: Speed, Depth, Note Div

PHASER - Enzo X's phaser takes inspiration from the humble 4 stage classic from Rochester, New York and widens the palette by adding controllable feedback and depth, and the ability to select from 1 to 24 stages of phasing. Try setting the Speed to OFF and driving the Depth with the Envelope modifier for an organic and responsive vocal sound. When Note Div is Off, the Speed parameter is used to set the speed. When Note Div is set to any other note division, the note value is used with the CLOCK Tempo to set the speed.
Parameters: Speed, Depth, Note Div, Mix, Feedback, Stages

RING MOD - From slow pulsing Tremolo type effects, to deep 60's Sci-Fi clangs, the Ring Mod provides a wide range of amplitude modulation. For a traditional tremolo chop, set the Mix to 50% and the Frequency low.
Parameters: Frequency, Waveshape, Mix

MIX CATEGORY:

MIX - At the end of the signal flow, Enzo X features a 4-input/2-output Mixer. This Mixer allows you to blend the input signal with the main wet path. The MIX parameter controls the overall mix and uses a custom taper to adjust the balance between the stereo wet and dry signal paths. Two trim controls, Dry Trim and Wet Trim, fine-tune the levels of the dry and wet signals relative to the MIX setting. When both trims are set to zero, the MIX parameter operates with its default taper.
Parameters: Mix, Dry Trim, Wet Trim

14 - MIDI CC TABLE

CONTROL CHANGE	ENZO X CONTROL	RECEIVE VALUE RANGE
CC# 01	OSCILLATOR MOD DEPTH	0 TO 127
CC# 02	OSCILLATOR MOD SPEED	0 TO 127
CC# 03	OSCILLATOR MOD RAMP TIME	0 TO 127
CC# 04	EXPRESSION PEDAL	0 TO 127
CC# 05	DRIVE TYPE	0 TO 21 = OFF 22 TO 42 = VOLUME PEDAL 43 TO 63 = TUBE 64 TO 85 = TRANSISTOR 86 TO 106 = OP-AMP 107 TO 127 = BITCRUSHER
CC# 06	DRIVE LOCATION	0 TO 31 = PRE + DRY 32 TO 63 = DRY 64 TO 95 = PRE AMBIENCE 96 TO 127 = POST AMBIENCE
CC# 07	GAIN/VOLUME/SAMPLE RATE	0 TO 127
CC# 08	BALANCE/BITS	0 TO 127
CC# 09	DRIVE LEVEL/COMP	0 TO 127
CC# 10	AMBIENCE TYPE	0 TO 25 = OFF 26 TO 51 = ECHO 52 TO 76 = SMALL 77 TO 102 = MEDIUM 103 TO 127 = LARGE
CC# 11	FEEDBACK/DECAY	0 TO 127
CC# 12	HALF SPEED	0 TO 63 = HALF SPEED OFF 64 TO 127 = HALF SPEED ON
CC# 13	AMBIENCE MOD	0 TO 127

CC# 14	BYPASS	0 TO 63 = FX BYPASS 64 TO 127 = FX ENABLE
CC# 15	TIME (CLOCK, 7 BIT TEMPO)	0 TO 127
CC# 16	AMBIENCE HIGHS	0 TO 127
CC# 17	ECHO LEFT DIVISION	0 TO 127
CC# 18	ECHO RIGHT DIVISION	0 TO 127
CC# 19	AMBIENCE + ECHO MIX	0 TO 127
CC# 20	AMBIENCE LOWS	0 TO 127
CC# 21	MIDI CLOCK	0 TO 42 = USE GLOBAL 43 TO 85 = FORCE LISTEN 86 TO 127 = FORCE IGNORE
CC# 22	SYNTH MODE	0 TO 25 = MONO SYNTH 26 TO 51 = POLY SYNTH 52 TO 76 = ARP SYNTH 77 TO 102 = DRY MONO 103 TO 127 = DRY POLY
CC# 23	SYNTH PITCH	0 TO 127
CC# 24	OSC 1 WAVE SHAPE	0 TO 127
CC# 25	OSC 2 WAVE SHAPE	0 TO 127
CC# 26	OSC 2 PITCH OFFSET	0 TO 127
CC# 27	OSC 2 DETUNE	0 TO 127
CC# 28	SYNTH GLIDE (PORTAMENTO)	0 TO 127
CC# 29	OSC 1 GAIN	0 TO 127
CC# 30	OSC 2 GAIN	0 TO 127
CC# 31	XMOD	0 TO 127
CC# 32	ARP MODE	0 TO 127

CC# 33	ARP STEPS	0 TO 127
CC# 34	ARP OCTAVES	0 TO 127
CC# 35	LEVEL	0 TO 127
CC# 36	DRY BLEND	0 TO 127
CC# 37	ARP CYCLE LATCH	0 TO 63 = OFF 64 TO 127 = ON
CC# 38	FILTER TYPE	0 TO 42 = LADDER 43 TO 85 = STATE VARIABLE 86 TO 127 = TWIN
CC# 39	FILTER FREQUENCY	0 TO 127
CC# 40	FILTER TYPOLOGY	0 TO 42 = LOWPASS 43 TO 85 = BANDPASS 86 TO 127 = HIGHPASS
CC# 41	FILTER RESONANCE	0 TO 127
CC# 42	FILTER NOISE	0 TO 127
CC# 43	TWIN FILTER SPREAD	0 TO 127
CC# 44	FILTER ENVELOPE AMOUNT	0 TO 127
CC# 46	FILTER ENVELOPE TYPE	0 TO 63 = ADSR 64 TO 127 = ENVELOPE
CC# 47	FILTER ATTACK TIME	0 TO 127
CC# 48	FILTER DECAY TIME	0 TO 127
CC# 49	FILTER SUSTAIN TIME	0 TO 127
CC# 50	FILTER SUSTAIN LEVEL	0 TO 127
CC# 51	FILTER RELEASE TIME	0 TO 127
CC# 52	DIRECTION	0 TO 63 = UP 64 TO 127 = DOWN
CC# 53	DEPTH	0 TO 127
CC# 54	NOTE PERSIST	0 TO 127

CC# 55	AMPLITUDE ATTACK TIME	0 TO 127
CC# 56	AMPLITUDE DECAY TIME	0 TO 127
CC# 57	AMPLITUDE SUSTAIN LEVEL	0 TO 127
CC# 58	AMPLITUDE SUSTAIN TIME	0 TO 127
CC# 59	AMPLITUDE RELEASE TIME	0 TO 127
CC# 60	MIX	0 TO 127
CC# 61	DRY TRIM	0 TO 127
CC# 62	WET TRIM	0 TO 127
CC# 83	OSC 1 WIDTH	0 TO 127
CC# 84	OSC 2 WIDTH	0 TO 127
CC# 85	ARP NOTE DIV	0 TO 127
CC# 86	MOD TYPE	0 TO 21 = OFF 22 TO 42 = CHORUS 43 TO 63 = FLANGER 64 TO 85 = VIBRATO 86 TO 106 = PHASER 107 TO 127 = RING MOD
CC# 87	MOD LOCATION	0 TO 31 = PRE + DRY 32 TO 63 = DRY 64 TO 95 = PRE AMBIENCE 96 TO 127 = POST AMBIENCE
CC# 88	MOD SPEED/FREQUENCY	0 TO 127
CC# 89	MOD DEPTH	0 TO 127
CC# 90	MOD MODE/WAVESHAPE/STAGES	0 TO 127
CC# 91	MOD FEEDBACK	0 TO 127
CC# 92	MOD MIX	0 TO 127
CC# 93	MOD NOTE DIV	0 TO 127
CC# 99	TAP TEMPO	PRESS = 127

CC# 117	TOGGLE TUNER MODE	PRESS = 127
CC# 118	TRIGGER HOLD MODIFIER	PRESS = 127 RELEASE = 0 **NOTE:** BE SURE TO SEND A RELEASE AFTER EVERY PRESS

15 - MIDI PC TABLE

PROGRAM CHANGE	ACTION
PC# 0	BYPASS
PC# 1-99	LOADS PRESETS 1 - 99
PC# 100	LOAD FAVORITE PRESET 1
PC# 101	LOAD FAVORITE PRESET 2
PC# 102	LOAD FAVORITE PRESET 3

16 - MIDI NOTE IN KEYBOARD CONTROL

Enzo X was designed with synthesists in mind, offering features that elevate its capabilities far beyond its predecessor. A standout addition is its ability to respond to MIDI Note On and Off messages, as well as Pitch Bend and Modulation Wheel controls, from any standard MIDI-equipped keyboard controller or synthesizer. To utilize this feature, simply connect a MIDI cable from the MIDI Out jack of your keyboard to the MIDI In jack on Enzo X, ensuring both devices are set to the same MIDI channel.

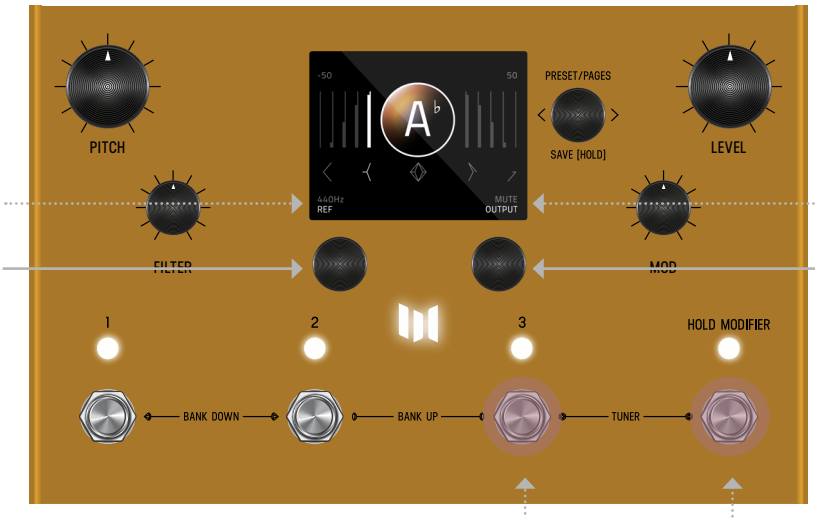
MIDI Note On and Off messages are functional in the Mono Synth, Poly Synth, and Arp Synth modes but do not affect the Dry modes. When receiving MIDI Note On and Off messages from an external keyboard, MIDI Note Off messages take precedence over the SUSTAIN time and NOTE PERSIST parameters, providing seamless and intuitive control for your performance.

A few things to keep in mind while using MIDI IN to control Enzo X:

- The Filter and Amplitude envelopes are no longer linked together, allowing for true Polyphonic control when in Poly Synth and Arp Synth modes.
- Bypassing Enzo X will result in no sound being generated. Bypassing Enzo X also serves as a MIDI Panic, silencing and clearing out any stuck notes that may be occurring from the keyboard.
- Enzo X is always listening for any device that sends MIDI NOTE messages (including but not limited to: MIDI keyboards, Sequencers, and DAWs).
- There is no need to select which input source you are using (MIDI IN or the L/R IN), Enzo X is always listening for both input sources and responding to any input received.
- Enzo X responds to Mono Aftertouch. SECTION 08 explains how to use Source A-F to assign Mono Aftertouch to control a parameter.

17 - TUNER

To engage TUNER, HOLD **3** + **HOLD MODIFIER** footswitches. Notes are automatically detected and turn green when accurately tuned. Tuner reference frequency can be adjusted if desired.



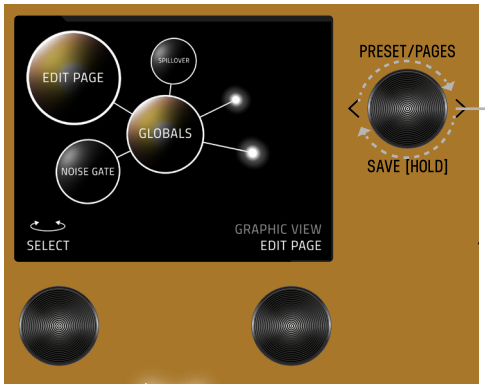
CONTROLLER 1 (OR C1)
Turn C1 to adjust the tuner's reference frequency, which also sets the reference frequency for the synth.

CONTROLLER 2 (OR C2)
Turn C2 to toggle the tuner's output between Bypass and Mute

HOLD **3** + **TAP** footswitches to engage **TUNER**.

18 - GLOBALS

GLOBALS is located at the end of the EDIT PAGES. To reach the end, continue to turn **C3** knob (clock-wise) and cycle through all categories until you reach GLOBALS. For a shortcut to GLOBALS, it is also behind SYSTEM INFO. See map. Global settings affect all presets and do not change per preset.



CONTROLLER 3 (OR C3)
Turn C3 knob (clock-wise) and cycle thru all categories until you reach GLOBALS.

These settings are universal to the entire Enzo X and do not change with the presets.

- NOISE GATE: Sets the threshold to enable the gate to help with noisy setups
- EDIT PAGE: Text View or Graphic View
- SPILLOVER: With Spillover enabled, echoes from your last preset overlap with your current preset during transitions.[1] [The Spillover needs time to fully decay for the previous preset before it can begin a new spillover for the current preset.]
- BYPASS TRAILS: With trails enabled, your echoes will decay naturally when Enzo X is bypassed
- TAP GLIDE: With glide enabled delay times entered with tap tempo will smoothly transition
- RELAY BYPASS: Buffered Bypass or Relay Bypass [mono input and output only].[2]
- INPUT LEVEL: Instrument or Line/Synth, if clipping occurs in Instrument mode, choose Line/Synth
- KILL DRY: When kill dry is enabled, Enzo X only passes audio when active. In bypass, Enzo X is muted. This is useful when working with an external mix control used in some amplifiers, processors, and mixing boards. BRIGHTNESS: Sets screen brightness from 0 to 100%
- LOGO LIGHT: Sets logo light brightness from 0 to 100%
- BRIGHTNESS: Sets screen brightness from 0 to 100%
- TUNER REFERENCE: Set the tuner reference from 425 Hz to 455 Hz, this also sets the reference frequency for the synth.
- TUNER OUT: Mute or Bypass
- TEMPO: Sets the global tempo
- TEMPO DISP: Milliseconds or BPM
- TEMPO SELECT: Select Preset or Global
- SPLIT MODE: When enabled, your dry signal is always sent to the right output, even with the effect on, effectively adding a built-in Y-Splitter. Use it to send the synth to a different amp or create a parallel path to your drive pedals.
- TACTILE: Disable the Tactile View Pop Up
- MIDI CHANNEL: 1 through 16, or OMNI
- MIDI CLOCK - Allows you to choose to LISTEN or IGNORE MIDI Beat Clock globally.
- MIDI OUT: Select MIDI Out or MIDI Thru. When MIDI Thru is enabled, MIDI data received on the MIDI In jack is passed to the MIDI Out jack

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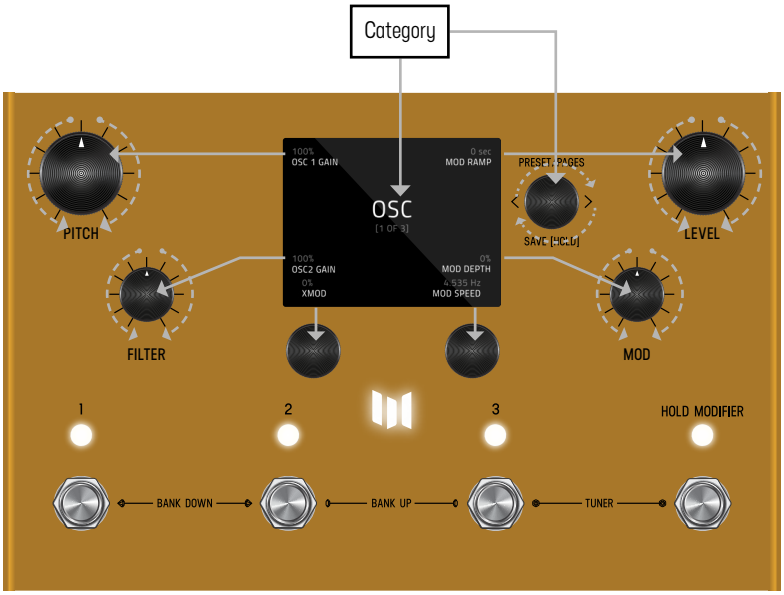
1 Enzo X features a stereo Analog Mix. Analog Mix is always used unless Spillover is Enabled or a processing element is put in the PRE + DRY or DRY locations.

2 Enzo X features a mono Relay Bypass selectable in the GLOBALS VIEW edit page. Stereo input and output connections necessitate automatically disabling the Relay and switching Enzo X to Analog Buffered Bypass. NOTE: Spillover, Trails, and Kill Dry all automatically engage Analog Buffered Bypass if they are selected. This happens transparently in the background in order to always maintain the highest signal integrity.

19 - TEXT VIEW (ALTERNATIVE VIEW OF EDIT PAGE)

The default appearance of the EDIT PAGE is GRAPHIC VIEW, which contain orbiting bubbles that allow for a focused approach to editing. An alternative view of the EDIT PAGE is TEXT VIEW which displays 6 parameters per page. Turn **C3** to cycle through categories. 6 knobs control settings simultaenously. You can change from GRAPHIC VIEW to TEXT VIEW in GLOBALS.
In GLOBALS, turn **C1** to carousel to EDIT PAGE. Turn **C2** and change from GRAPHIC VIEW to TEXT VIEW.



6 SIMULTANEOUS KNOB CONTROL
TEXT VIEW edit page (when set) utilizes 6 knobs to simultaneously control settings. See knobs indicated with grey arrows.

20 - EXPORTING PRESETS

To export a preset from Enzo X, first connect Enzo X's MIDI In and Out jacks to a MIDI Interface on your PC or MAC. Open an app that can record MIDI SysEx. On Mac, we recommend SysEx Librarian. While holding the footswitch for the active preset, quick press the lit LED button above it. The preset will be transmitted as SysEx data from Enzo X MIDI Out.

21 - FACTORY RESET

To put your Enzo X back to factory fresh condition, press and hold **C3** when powering up Enzo X to enter the Factory Reset View. From the Factory Reset View, **press C1** to start the Factory Reset which resets all presets and globals, or **press C2** to cancel the reset and start Enzo X normally. **NOTE:** Be sure to back up your custom presets via midi sysex.
Factory reset will erase all user edits to Enzo X factory presets.

22 - FIRMWARE UPDATE

Please check in SYSTEM INFO if you already have the latest firmware version installed in your unit.
To enter firmware update mode, press and hold footswitch **1 and 3** while powering up Enzo X.
The screen will show a Copy File graphic screen. Connect to your computer via the rear USB C jack. Enzo X will appear on your computer as a USB drive. When updates are available, drag and drop the latest Enzo X firmware image (downloadable from our product page) from your computer onto Enzo X drive. Enzo X will display a load meter. When the load meter is full and your computer signals that it is done with the copy, eject Enzo X drive before unplugging USB C cable.
Power Cycle graphic screen will display. Unplug and replug the power from Enzo X to complete the update.

23 - GLOSSARY

A

AMPLITUDE:: The strength or loudness of a sound wave, determined by the height of its waveform.

ATTACK [Filter and Amplitude Envelopes]: The time it takes for a sound to reach its maximum level after a note is played.

ATTACK TIME [Swell]: The length of time for a swell to reach full volume. This time starts when a pick attack (or transient) is detected.

B

BALANCE [Volume Pedal]: Panning control between left and right channels. -100% results in a fully right channel signal, 100% is fully left.

BANDWIDTH [State, Variable, Twin]: Sets the range of frequencies (around the center Frequency, that are allowed to pass through the filter. At lower settings, more frequencies are allowed to pass through the filter, at higher settings less frequencies are allowed through. Also known as Resonance.

BIT DEPTH [Bit Crusher]: Changes the bit depth from 1 bit to 32 bits, crushing the input signal and decreasing dynamic range.

BLEND [Dry Modes]: Sets the amount of signal, in this case dry signal, added to the main audio path

D

DECAY [Small / Medium / Large Prism]: Sets the reverb decay energy within the Prism reverb space. Higher values equate to longer reverb trails.

DECIMATION [Bit Crusher]: Changes the sample rate of the input signal; lower sample rate settings create low resolution audio with overtones similar to ring modulation.

E

ENVELOPE: A curve that controls how a sound evolves over time, shaping aspects like amplitude or filter cutoff.

F

FEEDBACK [Echo]: This controls the amount of the delay line's output that is mixed onto the delay line's input. This parameter is linked to the front panel Feedback knob and sets the feedback for both the Left and Right delays.

FREQUENCY [Filter]: The rate at which a waveform repeats, measured in Hertz (Hz), determining the pitch of the sound

G

GAIN [Tube, Transistor, Op-Amp,]: Adjustment for volume before the Drive effect.

H

HALF SPEED [Echo]: This sets the current read/write speed for the delay line. When half speed is disabled the delays operate at 48 kHz sampling rate giving you a maximum delay time of 2.54 seconds of stereo delay time; and when half speed is enabled the delays operate at 24 KHz giving you 5.08 seconds of delay time. Try changing the Half Speed parameter while the delays are echoing with a generous amount of feedback to create interesting time and pitch effects.

HIGHS [Ambience]: Shelf EQ cut for high-end frequencies, unity gain at 100%.

L

LEFT DIV [Echo]: This parameter sets the current time subdivision for the Left delay line and is expressed in note values. The division parameter is useful when you want to automatically adjust your Left delay to a specific note value ratio of the Time parameter. When set to "Off" the Echo will generate a quarter note division that matches the blinking Tap LED on the front panel.

LEVEL [Volume Pedal, Tube, Transistor, Op-Amp, Bit Crusher]: Adjustment for volume after the Drive effect.

LOWS [Ambience]: Shelf EQ cut for high-end frequencies, unity gain at 100%.

M

MIX [Vibrato, Chorus, Flanger, Phaser, Ring Mod]: Control over the amount of the wet signal mixed with dry, allowing for subtle use.

O

OSCILLATOR: An algorithm (or circuit) that generates periodic waveforms, such as sine, square, or sawtooth waves, which serve as the foundation of synthesized sound.

P

PITCH [Oscillators]: The perceived highness or lowness of a sound, determined by the frequency of the waveform.

R

RESONANCE [Filter]: Sets the range of frequencies (around the center Frequency, that are allowed to pass through the filter. At lower settings, more frequencies are allowed to pass through the filter, at higher settings less frequencies are allowed through. Also known as Bandwidth.

RELEASE [Filter and Amplitude Envelopes]: The time it takes for the sound to fade to silence after the note is released.

RIGHT DIV [Echo]: This parameter sets the current time subdivision for the Right delay line and is expressed in note values. The division parameter is useful when you want to automatically adjust your Left delay to a specific note value ratio of the Time parameter. When set to "Off" the Echo will generate a quarter note division that matches the blinking Tap LED on the front panel.

S

SHAPE [Oscillators, Modifiers]: The waveform's specific form (e.g., sine, square, sawtooth) that determines the harmonic content and timbre of the sound.

SPREAD [Ladder, State Variable]: Offsets the parameter on the right side. When the Spread parameter is at zero, both left and right channels of the effect behave the same way.

SUSTAIN [Filter and Amplitude Envelopes]: The level at which the sound holds steady while a note is sustained.

T

TOPOLOGY [Ladder, State Variable, Parametric]:

LOWPASS - A filter that passes signal below its cutoff frequency, effectively cutting high frequencies.

BANDPASS - A filter with a selective, narrow bandwidth. This attenuates both high and low end frequencies.

HIGHPASS - A filter that passes signal above its cutoff frequency, effectively cutting low frequencies.

W

WAVESHAPE [Ring Mod]: Select the shape the Ring Mod effect follows. The Sine waveshape is smooth and even, while the Square waveshape is abrupt and noticeable.

24 - SPEC COMPARISON BETWEEN ENZO AND ENZO X

SPECS	ENZO	ENZO X
FILTER ENVELOPE	SINGLE KNOB ATTACK DECAY BALANCE	FULL ADSR - ATTACK, DECAY, SUSTAIN, RELEASE
AMPLITUDE ENVELOPE	-	FULL ADSR - ATTACK, DECAY, SUSTAIN, RELEASE
DELAY	SINGLE 530 MSEC DELAY WITH STEREO OUT	DUAL 2500 MSEC DELAYS
FILTER	LADDER, STATE VARIABLE	LADDER, STATE VARIABLE, AND TWIN
MODULATION EFFECTS	RING MOD & DRY MODE CHORUS	CHORUS, FLANGER, PHASER, VIBRATO & RING MOD
DRIVES	-	VOLUME PEDAL, TUBE, OP AMP, TRANSISTOR, BIT CRUSH
MODIFIER	-	6 MODIFIERS
MIDI NOTE IN	-	FULL 6 VOICE POLYPHONIC CONTROL + PITCH AND MOD WHEELS
OSCILLATOR WAVE SHAPES	RAMP AND SQUARE APPLIES TO BOTH OSCS	INDEPENDENT RAMP, SQUARE, AND TRIANGLE FOR EACH OSC
DRY MODE PITCH SHIFTING	MONO ONLY	MONO AND POLYPHONIC MODES
ARP STEPS	FIXED AT 7	ADJUSTABLE FROM 1 TO 16
ARP MODES	ENZO MODE ONLY	UP, DOWN, UP/DOWN, AND ENZO MODE
ARP OCTAVE	FIXED AT 1	SELECTABLE FROM 1 TO 3
PARALLEL MIX FOR CATEGORIES	-	DRIVE AND MODULATION EFFECTS CAN BE SENT TO A PARALLEL DRY BUS
PRESETS	16 PRESET LOCATIONS	99 PRESET LOCATIONS
FACTORY PRESETS	16	75
ARTIST PRESETS	-	15 ARTIST CREATED PRESETS
FRONT PANEL PRESET CONTROL	-	BANK UP, BANK DOWN, + 3 PRESETS SELECT BUTTONS
FAVORITE BANK	-	BOOKMARK YOUR 3 FAVORITE PRESETS
SCREEN	-	FULL COLOR LCD SCREEN
DEDICATED OSC MOD	-	NEW OSC MOD CONTROL WITH SPEED, DEPTH AND RAMP
OSC XMOD	-	NEW XMOD ALLOWS OSC 1 TO CROSS MODULATE OSC 2 FOR FM SOUNDS
OSC2 PITCH SHIFT	DETUNE ONLY	FULL RANGE SHIFT AND DETUNE
OSC GAIN	-	INDEPENDENT GAIN FOR EACH OSCILLATOR
ARP MODE CYCLE LATCH	-	SELECTABLE CYCLE LATCH ALLOWS ARP CYCLE TO COMPLETE BEFORE ADDING
WHITE NOISE	-	NOISE CONTROL MIXES IN WHITE NOISE WITH THE OSCILLATORS BEFORE THE FILTER
GLOBAL TEMPO	-	SELECTABLE PRESET TEMPO OR GLOBAL TEMPO PER PATCH
MIDI BEAT CLOCK	ALWAYS ON	EACH PRESET CAN BE PROGRAMMED TO LISTEN TO OR IGNORE MIDI BEAT CLOCK
MIX	SINGLE MIX KNOB	MIX KNOB WITH DRY AND WET TRIM FOR PRECISE LEVEL BALANCING
TUNER	-	ALWAYS AVAILABLE CHROMATIC TUNER FROM FRONT PANEL SWITCHES
REFERENCE FREQUENCY	440 HZ	SELECTABLE REFRENCE FREQUENCY FROM 425 - 455 HZ FOR TUNER AND PITCH DETECTION
SPILLOVER BETWEEN PRESETS	-	SELECTABLE SPILLOVER FOR DELAY AND REVERB TRAILS

25 - TECHNICAL SPECIFICATIONS

Conversion:	24 bit A/D and D/A
DSP:	32 bit floating point
Sample Rate:	48000 Hz
Input Impedance:	1 Meg Ohm
SNR:	115 dB Typical
Frequency Response:	20Hz-20kHz
Max Input Level:	+9 dBu (instrument level setting)
	+12.5 dBu (line/synth level setting)
Power:	9V DC center-negative, 300mA, 2.1mm jack
Bypass:	Selectable True Bypass (Relay) or Analog Buffered Bypass
Dimensions:	7.25" wide, 4.5" long, 2" tall
Weight:	24 ounces

Federal Communications Commission Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment requires shielded interface cables in order to meet FCC class B limit.
Any unauthorized changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.