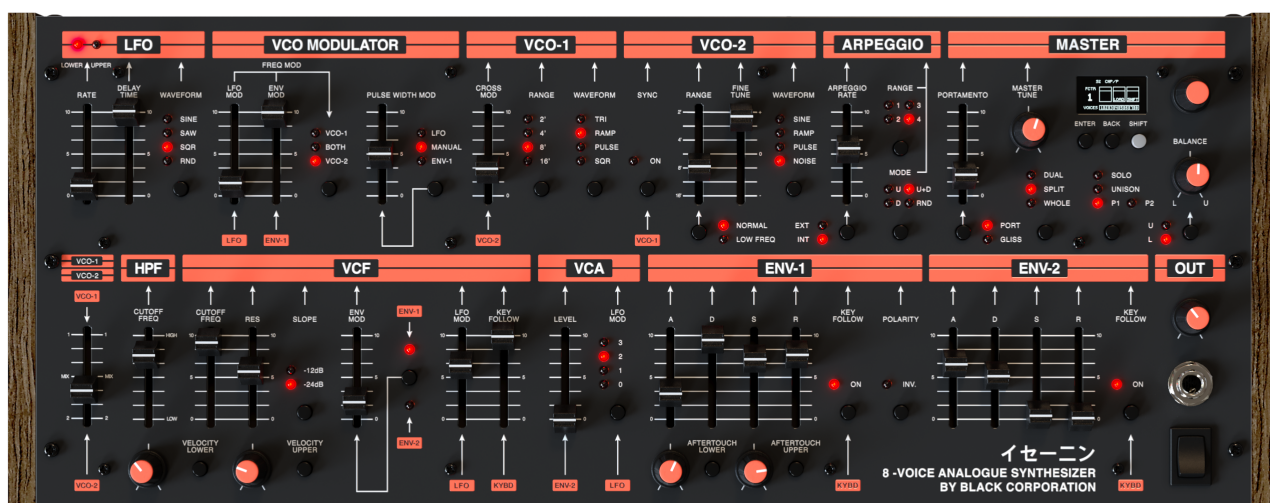


イセーニン

User Manual - December 2022

FW 1.0.0



Black Corporation GK
www.black-corporation.com
World Udagawa Bldg. 7F
Udagawacho 36-6
Shibuya, Tokyo
150-0042
Japan

FCC COMPLIANCE STATEMENT

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.

EUROPEAN UNION REGULATION COMPLIANCE STATEMENT

This product complies with the Low Voltage Directive 2006/95/EC and the Electromagnetic Compatibility Directive 2004/108/EC. The product meets the requirements of RoHS 2 Directive 2011/65/EU.

This product must be disposed of properly according to local laws and regulations.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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1. INTRODUCTION

Thank you for purchasing イセーニン, 8-voice, 16 oscillator analogue polyphonic synthesizer! The architecture and programmability of イセーニン is one that welcomes experimentation ranging from beautiful to strangely alien. Additionally, some classic performance functions in addition to assignable VELOCITY and POLYPHONIC AFTERTOUCHE will take you out into new, uncharted territory.

We hope you have as much fun with イセーニン as we have had developing it.

*For the sake of the reader and the authors' sanity, イセーニン will be written as **ISE-NIN** for the rest of this manual.

2. OVERVIEW & FEATURES

- 8-voice polyphonic, dual voice analogue synthesizer with fully analogue signal path
- 2 Voltage controlled oscillators (VCOs) including sine, triangle, saw, variable pulse, square, and noise waveform and VCO-2 detune
- Cross modulation on VCO-1
- Sync mode and Low Frequency mode on VCO-2
- Pulse width modulation (PWM) with LFO, ENV-1, and Manual settings
- Low pass filter (VCF) with 2-pole (12 dB/oct) and 4-pole (24 dB/oct) modes, Env Modulation, LFO Modulation, Key Follow. Separate 6 dB/oct high pass filter
- LFO with sine, saw, square and stepped random waveforms with destinations to VCO, VCF, VCA
- ENV-1 (VCF): Attack/Decay/Sustain/Release (ADSR) envelope with positive and negative polarity, Key Follow on/off and multiple destination sources of pulse width, VCO,
- ENV-2 (VCF/VCA): ADSR voltage-controlled amplifier (VCA) with Key Follow on/off
- Up to 5 assignable Velocity and Aftertouch controls per Layer mappable to many parameters
- Solo, Unison, Poly-1, Poly-2 key modes
- Portamento / Glissando settings
- Dual, Split and Whole modes per patch to combine Upper and Lower layers in bi-timbral and layered settings
- Global fine tune

CONTROLS

- Internal and MIDI syncable arpeggiator with Up, Down, Up & Down and Random settings, up to 4 octave range
- MIDI/MPE with polyphonic aftertouch
- Polyphonic pitch-bend in MPE
- MIDI over USB
- 320 factory and 256 user presets, 64 user layers and 500 user layers
- Microtuning system compatible with .scl and .mts files

DISPLAY & CONNECTIONS

- 128×64 OLED display
- DC input jack (12V)
- USB jack (type B, device/host)
- MIDI IN jack (DIN5)
- MIDI THRU jack (DIN5)
- MIDI OUR jack (DIN5)
- 2x AUDIO OUT jack (1/4 inch unbalanced) for separate Upper and Lower layers

PHYSICAL SPECIFICATIONS

- Width (incl. wood sides): 462mm / 18.2"
- Height: 175mm / 6.8"
- Depth: 50mm / 2"
- Weight: ~ 2.3 kg / 5.07 lbs

3. PACKAGE CONTENTS

When unpacking your **ISE-NIN**, check to make sure all of the following contents are present, and nothing has been lost or damaged in shipping. It may be helpful to save the packaging to protect the unit when transporting it. If you have any questions, feel free to contact us at support@black-corporation.com.

*The following applies to pre-built **ISE-NIN** units only. DIY **ISE-NIN** builders will obtain or assemble all of the following items from the most recent bill of materials (BOM) which can be found at <https://www.dsl-man.de/>*

ISE-NIN ships with the following items:

- **ISE-NIN** Desktop Analogue Synthesizer
- 12.0V 2.5A 30W wall wart power supply with US/JP, UK, EU, and AU local adapters.
- Rack Ears and Mounting Screws (Caution: Use the screws provided in the bag or you could damage your unit!)
- 4 Self-Adhesive Felt Pads
- Black Corporation Logo Stickers

It is a good idea to hold on to your packaging if you would like to transport **ISE-NIN** safely.

4. Architecture & Panel

In order to make **ISE-NIN**'s architecture easier to follow, we will start from the **MASTER** section and move left towards the **LFO** section, then down to the **MIXER** and move right to the **OUT** section.

ISE-NIN can save **LAYERS** and **PRESETS**. **LAYERS** are individually saved patches which are able to recall all of the settings of VCO-1 and VCO-2, Modulators, LFOs, Filters, VCA, and Envelopes, but not **ARPEGGIATOR** and **MASTER**. **PRESETS** store combinations of UPPER and LOWER **LAYERS** and/or **PANEL** settings as well as **ARPEGGIATOR** and **MASTER** settings.

MASTER

The **DISPLAY** along with the **ENTER**, **BACK**, **SHIFT** buttons and **ENCODER** knob navigate through the **SETTINGS** menu. **ENTER** selects a menu item or executes the selected function. **BACK** exits a menu or cancels a function. **SHIFT** accesses secondary functions as well as allows for some alternative adjustments of the sliders and knobs. The **ENCODER** is used to select presets, saved layers, and menu items. It can also be pressed to to act like the **ENTER** button or switch between **PRESET** and **PANEL** modes.

SPECIAL FUNCTIONS OF SHIFT BUTTON

Aside from allowing for secondary functions, the **SHIFT** button has two other very important uses. Holding **SHIFT + U/L** button, will turn on **HOLD**, which is useful for making drones, and when arpeggio is on, it works as a LATCH function in which the arpeggiator will continue to play if the keys are released. Additionally, when working in a Dual or Split patch which uses both Upper and Lower layers, holding **SHIFT** while moving any slider adjusts that parameter for both layers. To lock ISE-NIN so all sliders control both layers without the need to hold, press **SHIFT + Key Mode Button**. When this mode is on, the U indicator LED will be lit and the L indicator LED will flash.

Portamento Slider: Sets the time it takes for notes to slide to the next note when this function is on. **Portamento Button** toggles OFF, PORTAMENTO, and GLISSANDO (chromatically stepped portamento).

Master Tune Knob: Adjusts tuning up and down half a semitone.

Key Mode Button: Selects DUAL, SPLIT, or WHOLE modes. **ISE-NIN** can be used in three different play modes. When the unit is in Whole mode, the Upper layer plays a single preset or panel configuration as a standard 8 voice synthesizer. **ISE-NIN** behaves in the familiar way of an analogue polyphonic synthesizer.

The next two modes get a bit more interesting. SPLIT mode allows UPPER and LOWER layers to be played individually on the higher and lower range of the keyboard respectively allowing for two LAYERS or panel configurations to be played individually on different sides of the keyboard as two individual 4 voice synthesizers.

Finally, DUAL mode will play two selected LAYERS or programmed panel configurations (UPPER and LOWER) layered on one another acting as a 4 voice synthesizer with up to 4 oscillators per voice.

Assign Mode Button: Selects how **ISE-NIN** applies the 8 voices, each acting as a two oscillator synthesizer, to notes played/sent. SOLO, UNISON, P1, and P2 can be selected.

P1 (POLY-1) behaves in what would be considered the normal manner a synthesizer is expected to behave in which each note plays two VCOs which will play through their full natural envelope cycle.

P1, along with P2 and UNISON Modes all give first note priority meaning up to 8 notes can be played, but new notes can not be played until one of the original notes is released. As notes are released, new notes will replace the original notes even if their envelope cycle is incomplete.

P2 (POLY-2) behaves similarly to P1 with the only difference being the last note or notes played determine the natural release and previous notes

release immediately. As a result, selecting P2 is useful to reduce notes played with longer release times from overcrowding.

BALANCE KNOB: Controls the levels of the Lower and Upper Layers in a Dual or Split patch. In the center both layers are at 100%. Turn towards L to reduce the level of the Upper Layer, and towards U to reduce the level of the Lower Layer.

ARPEGGIATOR

ISE-NIN's arpeggiator section allows for automatically playing and shifting notes harmonically in real time. This can be useful for improvising during a performance or for inspiring ideas while composing.

EXT/INT BUTTON: Selects whether ARPEGGIATOR is Externally Clocked (This ONLY works when **ISE-NIN** is receiving a clock signal over MIDI), Internally Clocked, or OFF.

ARPEGGIO RATE SLIDER: Controls the rate of the Arpeggiated notes. When in EXT mode, the value is indicated by divisions or multiples of the incoming clock from 1/16 to 16X. When in INT mode, the rate is indicated in Frequency from 0.10HZ to 20.0Hz.

RANGE BUTTON: Selects the Octave range of the notes played. When 2, 3, or 4 are selected, the notes played will be repeated and transposed the

selected number of octaves. This order is determined with the MODE selector button.

MODE BUTTON: Selects the direction of the octave transpositions. Up, Down, Up & Down. When **RND** (RANDOM) is selected, all notes are played in random order.

VOLTAGE CONTROLLED OSCILLATORS (VCO)

ISE-NIN has two independent Voltage Controlled Oscillators (VCOs) per voice which are the main sound source of the synthesizer. They can be used together to create a wide range of tones and timbres.

VCO-1: Controls the parameters of the first VCO.

RANGE: Selects an octave range from 16', 8', 4', and 2' similar to the convention used in organs.

CROSS MOD: An additional control over the pitch of VCO-1 modulated by VCO-2. This slider controls the amount of modulation introduced from VCO-2 and depending on the shape and frequency of VCO-2, will produce a variety of effects from an LFO like vibrato at low frequencies to a ring modulation type metallic sound at high frequencies. This parameter can be used to introduce interesting harmonics, make strange FX, and make bell like timbres reminiscent of FM synthesis.

WAVEFORM: Gives control over the color of the tone of VCO-1 by selecting the shape of the waveform of

the signal. These waveforms include TRIANGLE, SAWTOOTH, variable PULSE, and SQUARE.

VCO-2: Is a second, independent sound source. Controls for the parameters of VCO-2, work slightly differently from VCO-1.

VCO-2 RANGE: Covers the same pitch range as VCO-1, but is quantized, so the pitch changes in half steps as the slider is moved up.

NORMAL / LOW FREQUENCY button: In Normal mode, pitch is just like VCO-1. When Low Frequency is engaged, VCO-2 essentially functions as an LFO. This is a more advanced parameter which can be useful when using VCO-2 to cross modulating VCO-1 to create strange effects. One additional function of this button is when VCO-2 is set to noise, it toggles between **WHITE** noise and **PINK** noise.

VCO-2 FINE TUNE: Adds control between the discrete half steps selected by VCO-2's RANGE control.

SYNC: Forces the pitch of VCO-2 to synchronize itself to that of VCO-1. This is useful to prevent "beating" of the two oscillators when they are slightly out of tune and can also be used to create a harmonically rich effect when VCO-2 is pitched higher than VCO-1. When the pitch envelope or LFO is set to modulate VCO-2 this can create a classic effect used in many classic polyphonic synthesizer patches.

VCO-2 WAVEFORM: Similarly to the controls of

VCO-1, the waveform of VCO-2 can be selected. These options are SINE, SAW, variable PULSE, and NOISE, a random mix of all frequencies useful to achieve various tones and modulation options when cross modulating VCO-1.

VCO MODULATOR

This section sets the amounts which the various modulation sources are applied to the pitch of VCOs 1 and 2. This section also controls modulator amounts to vary the width of PULSE when selected in either or both VCOs.

LFO MOD: Controls the amount the low frequency operator (LFO) modulates the pitch of VCO-1, VCO-2, or BOTH.

ENV MOD: Controls the amount Envelope 1 (ENV-1) affects the pitch of VCO-1, VCO-2, or BOTH.

FREQ MOD Destination Button: Selects the destination frequency to be affected by the LFO and/or ENV-1. Options are VCO-1, VCO-2, or BOTH.

PULSE WIDTH MOD: Controls the amount the selected source modulates the width of the PULSE if selected in VCO-1, VCO-2, or both.

PULSE WIDTH MOD Source: Selects the sources of Pulse Width Modulation. LFO, Manual, or ENV-1 can be selected.

LFO (LOW FREQUENCY OSCILLATOR)

ISE-NIN has a very simple main Low Frequency Oscillator (LFO), however it can produce some advanced tones when routed separately to LOWER and UPPER sections in a Preset. LFO works identically for LOWER and UPPER sections.

RATE: Adjusts the frequency of the LFO.

DELAY TIME: Adjusts the delay before the onset of the LFO. As the slider is moved up, the amplitude of the LFO gradually increases to maximum at a slower rate.

WAVEFORM Select Button: Selects the shape of the LFO. Options are SINE, SAW, SQR (SQUARE), RND (RANDOM).

AMPLIFIER SECTION

This section is important to adjust parameters relating to the output of **ISE-NIN's** Oscillators. These parameters are the MIXER VCO-1/VCO-2, FILTER, Voltage Controlled Amplifier (VCA), and Envelopes (ENV).

VCO-1/VCO-2: Adjusts the relative levels between VCO-1 and VCO-2 similar to a cross fader on a DJ mixer.

FILTER SECTION

HPF: Cuts the low frequencies of the layer being edited. This is useful to remove "muddiness" of the tone and adds additional control over the finished sound.

VCF CUTOFF FREQ: Controls the cutoff frequency of the low-pass filter. At the top of the slider, the low-pass filter is open and lets all frequencies through. At the bottom of the slider, the low-pass

filter is nearly closed and lets only very low frequencies through.

VCF CUTOFF RES: Controls the depth of the resonance (or the point at which the VCF begins to feed back) for the low-pass filter. At the bottom of the slider, no resonance is present. At the top of the slider, the maximum amount of resonance is present.

VCF CUTOFF SLOPE Selector: Allows for selection between a steep and rich -24dB/octave slope, good for "synthetic" and bass sounds, and a more acoustic -12dB/octave slope, better for string ensemble type or higher pitched sounds, to provide increased control over **ISE-NIN's** filter.

VCF CUTOFF ENV MOD: Controls the amount the selected envelope affects the cutoff frequency.

VCF CUTOFF ENV-1/ENV-2 Selector: Selects source envelope applied to the cutoff frequency.

VCF CUTOFF LFO MOD: Controls the amount the LFO affects the cutoff frequency.*

VCF CUTOFF KEY FOLLOW: Controls the amount the note played affects the cutoff frequency. The higher the note played on a keyboard, the more the cutoff frequency is raised.*

VOLTAGE CONTROLLED AMPLIFIER

VCA LEVEL: Controls the amplitude level of the layer being edited, post VCF. It is not used to boost the volume as the VCA section is used to shape volume of the layer being edited. Level is modulated by ENV-2.

VCA LFO MOD: Controls the amount of modulation from the LFO to the volume to create a vibrato effect, where 0 is inactive and 3 is maximum effect.

ENV-1/ENV-2: Adjusts the Attack, Decay, Sustain and Release to send time based modulation to various destinations including the VCO, VCF, and the VCA.

KEY FOLLOW button: Toggles whether the relative envelope amount source levels increase as lower keys are played on the keyboard.

POLARITY (ENV-1 ONLY): Inverts polarity of ENV-1

OUT: controls the master volume for both the headphone jack and the balanced output jacks on the back of the unit.

VELOCITY & AFTERTOUCHE buttons: This is perhaps the most interesting aspect of ISE-NIN. The VELOCITY and AFTERTOUCHE buttons allow you to assign up to 5 slider controllers as well as the BALANCE and MASTER TUNE knobs. VELOCITY can be assigned to every one of these mentioned controls, however AFTERTOUCHE can not be assigned to ENV-1 and ENV-2

Release (R), because of how aftertouch and releasing a key work in opposite directions.

To assign these functions, simply press the relevant **VELOCITY** or **AFTERTOUCH** button. The display will show 5 slots, which may already be assigned if you are using a preset, or all of them might be EMPTY if you are working with a new patch. To DELETE an individual assignment, press the ENTER button below the display indicated with DEL on the screen. To DELETE all assignments, press the **SHIFT** button below the display indicated with CLEAR on the screen.

VELOCITY and **AFTERTOUCH** for the **LOWER** section can only be accessed in **DUAL** or **SPLIT** mode, as **WHOLE** mode only functions with the **UPPER** layer.

5. SETTINGS MENU

Most of **ISE-NIN**'s tonal controls are accessible on the front panel in order to provide immediacy and a hands on approach to sound design, however there are additional functions which can be reached in the **SETTINGS MENU** to allow for more additional customizing of preferences.

ACCESSING THE SETTINGS MENU

To access the settings menu, hold **SHIFT** and press **BACK**.

In the settings menu, use the encoder to navigate through the settings menu sections. Press **ENTER** or click the encoder to select a section, and **BACK** to return to the patch selection screen.

From within a menu section, press **BACK (CNCL)** to return to the main settings menu.

RETUNE

This function quickly retunes **ISE-NIN**'s oscillators. Selecting this section of the settings menu displays the following message: "TO START RETUNE PRESS ENTER."

- Press **ENTER** to start the retune process. The display will read: "RECALIBRATION IN PROCESS." Retuning takes approximately 10 seconds. When complete, the display will update to "**DONE**".

Press **BACK** to return to the patch selection screen.

MIDI SETTINGS

These settings section changes how MIDI devices interact with **ISE-NIN**. These settings are saved in Presets.

MODE: determines how **ISE-NIN** interacts with a MIDI controller based on the controller's capabilities. The Settings are **POLY AT (POLYPHONIC AFTERTOUCHE)**, and **MPE**.

- **POLY AT (POLYPHONIC AFTERTOUCHE):** For basic MIDI controllers which use channel pressure and those capable of polyphonic aftertouch.
- **MPE:** For MIDI Polyphonic Expression (MPE) supporting controllers, sequencers, or DAWs.

SLIDERS/KNOBS (GLOBAL): Changes **ISE-NIN**'s behavior when the physical position of a knob or slider control is different from the value stored in the current saved patch. Options are **PICK UP**, **MERGE**, or **INSTANT**.

- **PICK UP:** Moving controls has no effect until the its position moves through the current patch's stored value. Once the slider has moved through the stored value, changes will be audible based on the control's actual position.

- **MERGE:** Moving controls has an immediate effect, but will not instantly reflect its physical position. In effect, the stored value of the current patch and the current position will meet each other gradually, eventually merging. This may be useful in a live setting in order to avoid noticeable (and often unwelcome) changes in parameters.
- **INSTANT:** Moving knobs or sliders has an immediate effect. (This is much more responsive, but not recommended for live settings.)

CC (GLOBAL): Changes **ISE-NIN's** behavior when a MIDI CC (Continuous Control) signal is different from the value stored in the current saved patch. Options are **PICK UP**, **MERGE**, or **INSTANT**.

- **PICK UP:** Incoming CC has no effect until the its position moves through the current patch's stored value. Once the slider has moved through the stored value, changes will occur based on the CC's actual value.
- **MERGE:** Incoming CC has an immediate effect, but will not instantly reflect its physical position. In effect, the stored value of the current patch and the current position will meet each other gradually, eventually merging. Once the values merge, changes will occur based on the parameter's actual value.

- **INSTANT:** Incoming CC has an instant effect. (This is much more responsive, but not recommended for live settings.)

CHANNEL (GLOBAL): Selects the MIDI channel **ISE-NIN** will receive. The content of this menu section will change, depending on the selected controller **MODE**.

- **POLY AT** is selected in **MODE**, ALL or channel 1-16 may be selected. The display will update to the currently selected MIDI channel (by default, channel 1).
- If **MPE** is selected in **MODE**, only MIDI channels 1-8 can be selected. The MPE standard uses an individual MIDI channel for each voice, in order to allow for polyphonic velocity, aftertouch, and other expressivity controls per voice. **ISE-NIN** assigns MIDI channels 9-16 to each of its 8 voices. The master MIDI channel selected (1-8) assigns the master channel **ISE-NIN** will receive.

OUT CHANNEL (GLOBAL): Selects the MIDI channel (1-16) **ISE-NIN** will transmit on.

PITCHBEND RANGE (GLOBAL): Sets the amount of pitch bend in semitones.

MPE PITCHBEND RANGE (GLOBAL): Sets the amount of MPE controller pitch bend in semitones.

SPLIT POINT (GLOBAL): Sets the key at which the UPPER section begins in SPLIT KEY MODE.

CC RECEIVE (GLOBAL): Determines whether **ISE-NIN** will accept incoming continuous control (CC) messages from the connected sequencer or controller.

- **OFF** ignores all incoming CC messages.
- **ON** allows **ISE-NIN** to be modulated by external CC messages from the connected MIDI source.

CC74 REPLACE (GLOBAL): Some MPE controllers, such as the Roli Seaboard series and the Haken Continuum, allow additional expressivity by moving fingers up and down the vertical surface of the keys. These movements are translated to continuous control messages on channel 74, which cannot be changed on the controller.

For this reason, **ISE-NIN**'s firmware can select a new destination for CC74, in order to take advantage of the vertical dimension of MPE controller series' keys. Available destinations include:

Use the encoder to select the preferred destination, then press **ENTER (SAVE)** to save the selection.

MOD WHEEL DESTINATION (PER-PATCH): Determines what continuous control (CC) message the connected MIDI controller's mod wheel will modulate. Available destinations include:

- **LFO RATE**
- **LFO VCO**
- **LFO VCF**
- **PWM (Pulse Width Modulation)**
- **CROSSMOD**
- **ARP RATE (Arpeggiator Rate)**
- **HPF CUTOFF (High Pass Filter Cutoff)**
- **LPF CUTOFF**
- **RESONANCE**
- **VCA LEVEL**

Use the encoder to select the preferred mod wheel destination, then press **ENTER (SAVE)** to save the selection.

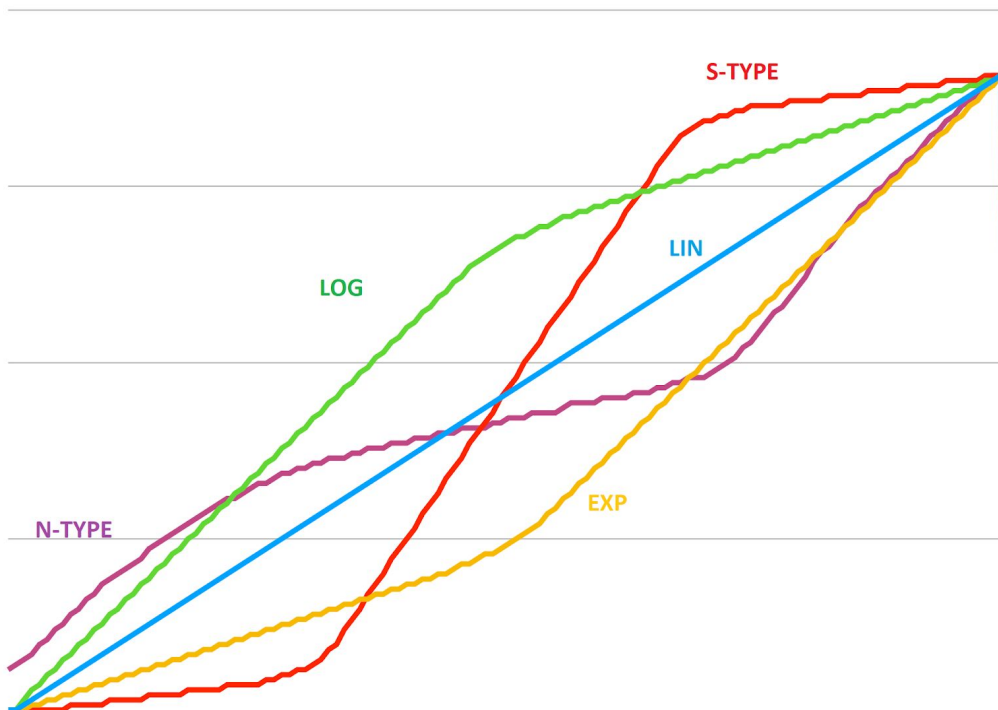
MOD WHEEL POLARITY (PER-PATCH): Determines whether the connected controller's mod wheel increases or decreases the value of the destination it has been sent to in the **MOD WHEEL DESTINATION** setting.

- **POSITIVE:** adds to the value of the CC destination as use of the mod wheel increases.
- **NEGATIVE:** decreases the value of the CC destination as use of the mod wheel increases.

VELOCITY CURVE (PER-PATCH): Determines the shape of the spread of values applied to all velocity modulation parameters. These include **LINEAR, LOGARITHMIC, EXPONENTIAL, STYPE, NTYPE.**** (See next page for an explanation of this)

AFTERTOUCHE CURVE (PER-PATCH): Determines the shape of the spread of values applied to all aftertouch modulation parameters. These include **LINEAR, LOGARITHMIC, EXPONENTIAL, STYPE, NTYPE.****

****VELOCITY** and **AFTERTOUCHE** shapes can most simply be explained with the following chart:



Use the encoder to select the preferred **VELOCITY** or **AFTERTOUCHE CURVE** mode, then press **ENTER (SAVE)** to save the selection.

VOICE SETTINGS (PER-PATCH)

VOICE Settings changes how **ISE-NIN**'s **UNISON** mode functions and which outputs the **UPPER** and **LOWER** layers go through when in **DUAL** and **SPLIT** modes.

MODE: Determines how **ISE-NIN** assigns its voices in **UNISON** mode.

- **1 VOICES:** 1 Voice will be played per key
- **2 VOICES:** 2 Voice will be played per key
- **3 VOICES:** 3 Voices will be played per key
- **4 VOICES:** 4 Voices will be played per key

Use the encoder to select the preferred voice mode, then press **ENTER (SAVE)** to save the selection.

OUTPUT: Determines whether the **UPPER** and **LOWER** layers are sent to the separate **UPPER** and **LOWER** outputs or are summed into one signal.

- **SPLIT:** **UPPER Layer** and **LOWER Layer** go through their separate **UPPER** output and **LOWER** outputs. Useful when recording a **DUAL** or **SPLIT** patch to record each Layer individually.
- **MIXED (Default):** **UPPER** and **LOWER** are summed into one signal. Each output sends the same summed signal. Levels are controlled using the balance knob.

TIME SETTINGS (PER-PATCH)

TIME settings adjust the minimum and maximum length of the Attack, Decay, and Release parameters.

ATTACK MIN: Sets the minimum length of the attack stage of the VCF and VCA's envelopes. The default value is 1.0MS (milliseconds). The allowable range is 1.0MS to 100MS.

- Use the encoder to select the desired number of milliseconds, then press **ENTER (SAVE)** to save the selection.

ATTACK MAX: Sets the maximum length of the attack stage of the VCF and VCA's envelopes. The default value is 10S (seconds). The allowable range is 1.0S to 10S.

- Use the encoder to select the desired number of seconds, then press **ENTER (SAVE)** to save the selection.

DECAY MIN: Sets the minimum length of the decay stage of the VCF and VCA's envelopes. The default value is 3.0MS (milliseconds). The allowable range is 1.0MS to 100MS.

- Use the encoder to select the desired number of milliseconds, then press **ENTER (SAVE)** to save the selection.

DECAY MAX: Sets the maximum length of the decay stage of the VCF and VCA's envelopes. The default value is 100S (seconds). The allowable range is 1.0S to 100S.

- Use the encoder to select the desired number of seconds, then press **ENTER (SAVE)** to save the selection.

RELEASE MIN: Sets the minimum length of the release stage of the VCF and VCA's envelopes. The default value is 3.0MS (milliseconds). The allowable range is 1.0MS to 100MS.

- Use the encoder to select the desired number of milliseconds, then press **ENTER (SAVE)** to save the selection.

RELEASE MAX: Sets the maximum length of the decay stage of the VCF and VCA's envelopes. The default value is 100S (seconds). The allowable range is 1.0S to 100S.

- Use the encoder to select the desired number of seconds, then press **ENTER (SAVE)** to save the selection.

RESET TO DEFAULTS: Resets all **TIME** settings back to their default values. Selecting this section of the **TIME** menu displays the following message: "TO RESET TO FACTORY DEFAULTS PRESS ENTER."

ARPEGGIATOR SETTINGS (PER-PATCH)

SEPARATION: Sets whether **UPPER** and **LOWER** layers in a **DUAL** or **SPLIT** patch share the same **ARPEGGIO** settings.

- **COMMON:** In this mode, **UPPER** and **LOWER** share the same **ARPEGGIO** Rate, Range and Mode settings
- **SPLIT:** In this mode, **UPPER** and **LOWER** each have their own **ARPEGGIO** Rate, Range and Mode settings. This setting is useful for creating patches where each Layer has a different **ARPEGGIO** setting. For example, in **DUAL** mode, **LOWER** Layer might play a sustained chord while **UPPER** plays an arpeggiator

Use the encoder select the desired mode, then press **ENTER (SAVE)** to save the selection.

VELOCITY: Sets whether the played notes correspond to the velocity of the played keys.

- **OFF:** Every note in the **ARPEGGIO** sequence is at a static velocity. This mode is faithful to the **ARPEGGIO** mode on the original JP-8.
- **ON:** The notes in the **ARPEGGIO** sequence play back with varying velocity depending on each key press. This can create dynamic sounds which vary wildly depending on how the Velocity settings are mapped on each Layer.

Use the encoder select the desired mode, then press **ENTER (SAVE)** to save the selection.

MICROTUNING SETTINGS (GLOBAL)

MICROTUNING enables or disables microtuning. Available options are **ON** and **OFF**.

- **ON:** Microtuning is enabled.
- **OFF:** Microtuning is disabled.
- **TUNING PROGRAM:** Selects which imported microtuning is enabled.

Tuning programs may be custom created, or there are various sources with downloadable files in the SCALA or .scl format. These files can be converted to .mts format using the following link:

<http://www.microtonalsoftware.com/scl-scala-to-mtsconverter.html>

Once the .mts file is created, it can be uploaded to **ISE-NIN** using any sysex librarian software, which is also used to save presets on a computer. When uploaded, **ISE-NIN** will automatically navigate to preset locations where the tuning program can be saved.

ODDSOUND INSTRUCTIONS

OddSound's MTS-ESP MIDI CLIENT VST or AU plugin can send .mts files directly from your DAW to **ISE-NIN**.

Once the software is installed, connect **ISE-NIN** to the computer via USB or DIN midi. Make sure **ISE-NIN** or the correct MIDI port is enabled in your computer or DAW's MIDI settings.

1. Open MTS-ESP MIDI Client plugin in your DAW. In the MTS-ESP MIDI Client plugin, under **Method**, select **MTS SYSEX**. Under Output, select **ISE-NIN**, or if using DIN MIDI and a MIDI to USB interface select the correct port.
2. Select the .mts file to be sent and click **Send Dump**. The desired .mts file should now be loaded into **ISE-NIN**.
3. Use the encoder to select the desired setting, then press **ENTER (SAVE)** to save the selection.

CALIBRATION SETTINGS (GLOBAL)

CALIBRATION calibrates slider positions, tunes oscillator voices as a group or individually and debugs issues with **ISE-NIN**.

POTS / SLIDERS: Calibrates the center position of pots and sliders with a center detent. Selecting this calibration setting updates ISE-NIN's display to read, "SET CENTER DETENT KNOBS / SLIDERS TO MIDDLE AND PRESS ENTER." These pots and sliders are the following:

- **VCO-2: FINE TUNE**
- **MASTER TUNE**
- **UPPER / LOWER BALANCE**
- **VCO-1 / VCO-2 BALANCE**
- **VELOCITY UPPER**
- **VELOCITY LOWER**
- **AFTERTOUCHE LOWER**
- **AFTERTOUCHE UPPER**

Ensure that all of the above knobs and sliders are in their center detent position before running calibrations, as the behavior of the sliders will be altered if their center position is relocated.

Press **ENTER** to start the calibration process. Calibration occurs instantly. When complete, the screen displays "DONE". Press **BACK (OK)** to return to the **CALIBRATION** settings screen.

OSCILLATORS: Calibrates the oscillators of all voices simultaneously or on a per-voice basis. Note: For best results, allow the unit to warm up for 20 minutes before performing this procedure.

To tune all voices simultaneously, select **TUNE ALL VOICES**. The display will read "TO START AUTOTUNE PRESS ENTER."

Press **ENTER** to start the oscillator calibration process. The display will read: "OSC 1A TUNING," and displays a progress bar. Calibration takes approximately 1-3 minutes per voice and proceeds from OSC 1A to OSC 1B to OSC 2A and so on. Full calibration of all oscillators takes approximately 10-15 minutes. When complete, the screen displays "DONE." Press **BACK (OK)** to return to the **CALIBRATION** settings screen.

To tune an individual voice, select the the desired voice number and press **ENTER**.

FILTERS: Calibrates the filters of all voices simultaneously or on a per-voice basis. Note: For best results, allow the unit to warm up for 20 minutes before performing this procedure.

To tune all filters simultaneously, select **TUNE ALL VOICES**. The display will read "TO START AUTOTUNE PRESS ENTER."

Press **ENTER** to start the oscillator calibration process. The display will read: "FILTER 1" and displays the note and frequency as it calibrates. Calibration takes approximately 1-3 minutes per voice and proceeds from Filter 1 through Filter 8. Full calibration of all filters takes approximately 10-15 minutes.

When complete, the screen displays "DONE." Press **BACK** to return to the **CALIBRATION** settings screen.

To tune an individual voice, select the the desired voice number and press **ENTER**.

CROSSMOD: Calibrates the cross modulation of all voices simultaneously or on a per-voice basis.

Note: For best results, allow the unit to warm up for 20 minutes before performing this procedure.

To tune all voices simultaneously, select **TUNE ALL VOICES**. The display will read "TO START AUTOTUNE PRESS ENTER."

Press **ENTER** to start the oscillator calibration process. The display will read: "CARD 1," and displays the percentage of progress. Calibration takes approximately 1-2 minute per voice and proceeds from CARD 1 to CARD 2 and so on. Full calibration of all voices takes approximately 8-10 minutes. When complete, the screen displays "DONE." Press **BACK** to return to the **CALIBRATION** settings screen.

To tune an individual voice, select the the desired voice number and press **ENTER**.

RESET SETTINGS (GLOBAL)

RESET SETTINGS reverts all **ISE-NIN** settings to their default. Selecting this will display the

following message: "TO RESET SETTINGS PRESS ENTER."

Press **ENTER** to start the reset process. The display will now read: "CONFIRM RESET." Press **ENTER (OK)** again to confirm, or press **BACK (BACK)** to cancel the reset process.

Press **ENTER (OK)** a second time to start the reset process. Reset takes place immediately and returns all settings to their default values.

ABOUT

ABOUT displays the following information about the device:

- Hardware revision number
- Firmware revision number
- Black Corporation copyright information

6. SETUP & CONNECTIONS

POWER

Connect the given plug tip for your region to the power supply. Insert the barrel end of the power supply into the input labeled **12VDC/2A POWER** on the back of the unit. Plug the other end of the power supply into an AC outlet. Note that it may take a few minutes for the oscillators to reach stable tuning.

AUDIO/HEADPHONES OUTPUT

ISE-NIN has two balanced audio output jacks. One for the the LOWER layer, one for the UPPER.* Use Turn the **VOLUME** knob to minimum (fully counter-clockwise) before connecting an audio cable. Insert one end of a 1/4" instrument cable into each of the jacks labeled **BALANCED AUDIO OUT (LOWER, UPPER)** on the back of the unit, and the other end into a powered amplifier or the input of an audio mixer. Carefully adjust the volume to a comfortable level by turning the **OUT** knob clockwise.

NOTE: By default all Presets are set to MIXED mode, which sends the mixed audio of the Upper and Lower layers to both outputs. To engage the individual outputs, in the Settings menu, select Voice, and change the setting to Split mode.

The **HEADPHONES** output is a stereo output that either separates the LOWER and UPPER sections to the left and right channels or mixes them as two, depending on the Mixed or Split setting. Like the AUDIO OUT jack, the HEADPHONES output is controlled by the VOLUME knob. Turn the VOLUME knob to minimum before inserting a headphone cable, then adjust volume to a pleasing level.

MIDI CONNECTIONS

Because **ISE-NIN** does not have an onboard keyboard or sequencer, an external MIDI controller, DAW or hardware sequencer must be used to control the unit. **ISE-NIN** can be controlled with standard MIDI controllers, or for more expressivity, a polyphonic aftertouch controller, or MIDI Polyphonic Expression (MPE) controller.

DIN MIDI

To control ISE-NIN with a controller that uses a DIN5 MIDI output, connect a MIDI cable from the output of the controller to the jack labeled MIDI IN on the back of the unit. If desired, MIDI signals can be passed through the unit to another device by connecting a MIDI cable to the jack labeled MIDI THRU on the back of the unit to the MIDI input of another device. MIDI OUT can also be connected to send Sysex data to a computer or directly to another device.

USB MIDI

To send MIDI to and from **ISE-NIN** directly with a computer, USB-B cable connected to **ISE-NIN** and appropriate (USB-A or C) connector to the computer.

7. BANKS & PRESET SELECTION

When first exploring **ISE-NIN**, it may be helpful to experiment with the factory presets to understand the capabilities of the synthesizer. **ISE-NIN**'s factory patches have been designed to demonstrate the vast range range of capabilities and expressivity the synthesizer is capable of.

To enable the maximum amount of expressivity from **ISE-NIN**, make sure the **MIDI MODE** settings are configured to match the connected MIDI controller type. To make sure **ISE-NIN** is configured correctly for the connected controller type, see the *SETTINGS* section of this manual:

- For most MIDI controllers, select the **PAT (POLY AFTERTOUCHE)** setting.
- For MIDI Polyphonic Expression (MPE) controllers such as ASM Hydrasynth, Expressive Osmose, Roli Seaboard, Roger Linn Linnstrument, or Haken Continuum, select the **MPE** setting.

PATCH BANK OVERVIEW

ISE-NIN has 5 available patch banks, including 3 Factory preset banks and 2 User Banks. The **FACTORY** patch banks are not editable, but factory

patches can be edited and saved to User Bank 1 or User Bank 2.

- **M. STEIN:** 128 factory presets programmed by composer and music producer Michael Stein.
- **BENEDEK:** 128 factory presets programmed by musical artist and Black Corporation associate Nicky Benedek.
- **VINTAGE:** The first 8 patches in this bank are faithful recreations of the original JP-8 Patch Presets, which include Dual and Split mode settings. The rest of the 64 patches in this bank are Dual and Split patches built from original JP-8 sounds from the **ISE-NIN** Vintage Layer Bank that stay true to it's planetary heritage.
- **User Banks 1 and 2 (labeled BNK1 and 2):** These patch banks each provide 128 user-editable patch slots.

LAYERS

ISE-NIN's patch creation is built around Layers, individual sounds which can be used individually or layered or split across the keyboard in DUAL and SPLIT modes, just as on the original JP-8.

From the main screen, press **BACK**. You will be taken to the LOAD LAYER screen. Scroll through to the Layer you want to load and press ENTER. To switch between the LAYER and VINTAGE LAYER banks, press SHIFT.

A Layer has now been loaded into the Upper Layer slot. In Whole mode this will be the sole Layer and play all 8 voices of **ISE-NIN**.

From the main screen, by pressing **SHIFT** and **ENTER**, these Layer banks can be accessed and scrolled through in the same way as the Preset Banks. However, in order to save Global settings for these sounds, they must be loaded into a Preset.

ISE-NIN includes 2 banks of Layers:

- **VINTAGE LAYERS:** Faithful recreations of all 64 original JP-8 factory patches.
- **LAYERS:** A blank bank of 500 slots for the user's own layers.

SELECTING BANKS

While holding **SHIFT**, press **ENTER (FACTORY)** to switch between patch banks.

To switch **ISE-NIN** back to the parameters currently set by the sliders in realtime, simply click the main data encoder while in the bank selection mode. **NOTE:** If you have edited a preset patch or layer which you would like to save, please do so before as the changes you have made will not be saved after switching back to Panel mode.

Note: **ISE-NIN** responds to standard Program Change and Bank Change MIDI messages. Make sure that CC Receive is turned ON in the MIDI menu. Bank change uses MIDI CC message 0, with the values 0 = User Bank 1, 1 = User Bank 2, and 2 = Factory Bank.

SELECTING PATCH PRESETS

When navigating to a new bank, patch preset 1 will be selected.

Scroll between patches using the encoder.

Some MIDI controllers and DAWs are capable of sending Program Change messages. **ISE-NIN** will respond to Program Change messages, allowing for selection of the next, previous, or specific patch numbers from the current bank, or from a different bank entirely.

SAVING PATCH PRESETS

ISE-NIN has 256 user writable presets total, and 500 User Layer slots. Patches can be saved in the banks labeled Bank 1 and Bank 2. Each Preset Bank has 128 writable slots.

When editing and saving **FACTORY PRESETS** and **LAYERS**, you must save to Bank 1, Bank 2 or Layers. **FACTORY PRESETS** cannot be overwritten.

Saved **PRESETS** store the following values:

- All front panel slider and switch positions.
- **DUAL**, **SPLIT**, or **Single** settings
- **UPPER LAYER** and **LOWER LAYER** (in **SINGLE** mode, Only **UPPER** is active)
- All non-global **MIDI** settings:

To save/overwrite a Preset or Layer in the current preset memory location:

1. Press **ENTER (SAVE)**. The Active Voices display will be replaced by the option to select **PRESET** or **LAYER**. If **LAYER** is selected, only the currently selected **Upper** or **Lower Layer** will be saved. Check to make sure the intended **Layer** is currently selected.
2. Press **ENTER (SAVE)** again. The patch has been saved to the current location, overwriting the previous values of that **PRESET** or **LAYER** location.

To save/overwrite a Preset or Layer in a new Preset memory location of the current bank:

1. Press **ENTER (SAVE)** and select either **PRESET** or **LAYER**.
2. Use the encoder to navigate to the desired preset memory location. Be certain to save the patch in the correct location, as the previous values will be overwritten when the save process is complete.
3. Press **ENTER (SAVE)** a second time. The patch has been saved, overwriting the previous values of that preset location.

To save/overwrite a Preset or Layer in a different bank:

1. Hold the **SHIFT** Button and select the desired bank by scrolling using the encoder.
2. Press **ENTER (SAVE)** and select **PRESET** or **LAYER**.
3. Use the encoder to navigate to the memory location to be saved. Be certain to save the patch in the correct location, as the previous values will be overwritten when the save process is complete.
4. Press **ENTER (SAVE)** a second time. The patch has been saved, overwriting the previous values of that **PRESET** or **LAYER** location.

8. PATCH PROGRAMMING

Once a patch has been saved to Bank 1 or 2, it can be edited at any time by recalling it and adjusting the buttons and knobs or patch-specific settings until the desired sound is reached.

Once adjustments have been made, save the preset to the bank and preset as desired.

BACKING UP PATCH PRESETS

Importing and exporting of **ISE-NIN** preset banks is done via SysEx. Connect **ISE-NIN** to your computer via USB or via DIN MIDI and MIDI interface, then set your SysEx program (such as SysEx Librarian or MidiOX) to listen to incoming SysEx.

Send entire selected Preset Bank / Layer Bank:

Hold the **VCO-1 RANGE**, **VCO-1 WAVEFORM** and **SYNC: ON** buttons all at once while pressing the Encoder button. This will send a SysEx burst via MIDI containing all of the bank's patch data.

Send single Preset / Layer:

Hold the **VCO-1 RANGE**, **VCO-1 WAVEFORM** and **SYNC: ON** buttons all at once while pressing the Encoder button. This will send a SysEx burst via MIDI containing all of the bank's patch data.

PANEL MODE

Panel mode is available to bypass all presets and create patches based on the current positions of all knobs and switches on the front panel. While **ISE-NIN** cannot initialize patches to a default state, panel mode can create patches from panel settings, which can be saved to any non-factory location.

To place **ISE-NIN** in panel mode, press the encoder.

To exit panel mode, press the encoder again, or **BACK (LOAD)** to navigate to a saved patch.

9. UPDATING FIRMWARE

1. Download the latest firmware and download STM32

Cube Programmer from here:

<https://www.st.com/en/development-tools/stm32cubeprog.html#get-software>

2. Unzip the downloaded file.

3. **For Windows users:** Open the unzipped folder and double click on the file SetupSTM32CubeProgrammer-2.12.0.exe. Follow the instructions.

For Mac users: Open the unzipped folder and double click on the file SetupSTM32CubeProgrammer-2.12.0. If there is a problem with installing (it can happen if you have a MAC Silicon processor) go to step 3.1. If not go to step 4.

3.1 Right click on the unzipped folder and select "Services -> New Terminal at Folder"

3.2 Copy the line below. Paste it to Terminal and press enter:

```
java -jar SetupSTM32CubeProgrammer-2.12.0.exe
```

3.3 The installer should open. Follow the installation procedure.

3.4 After the installation, copy and paste the line below into Terminal and press enter:

```
cp -R ./jre /Applications/STMicroelectronics/  
STM32Cube/STM32CubeProgrammer/STM32CubeProgrammer.app
```

3.5 Next, copy and paste the line below into Terminal and press enter.

```
cd /Applications/STMicroelectronics/STM32Cube/  
STM32CubeProgrammer/
```

3.6 Finally, copy and paste the line below into Terminal and press enter.

```
sudo xattr -cr ./STM32CubeProgrammer.app/
```

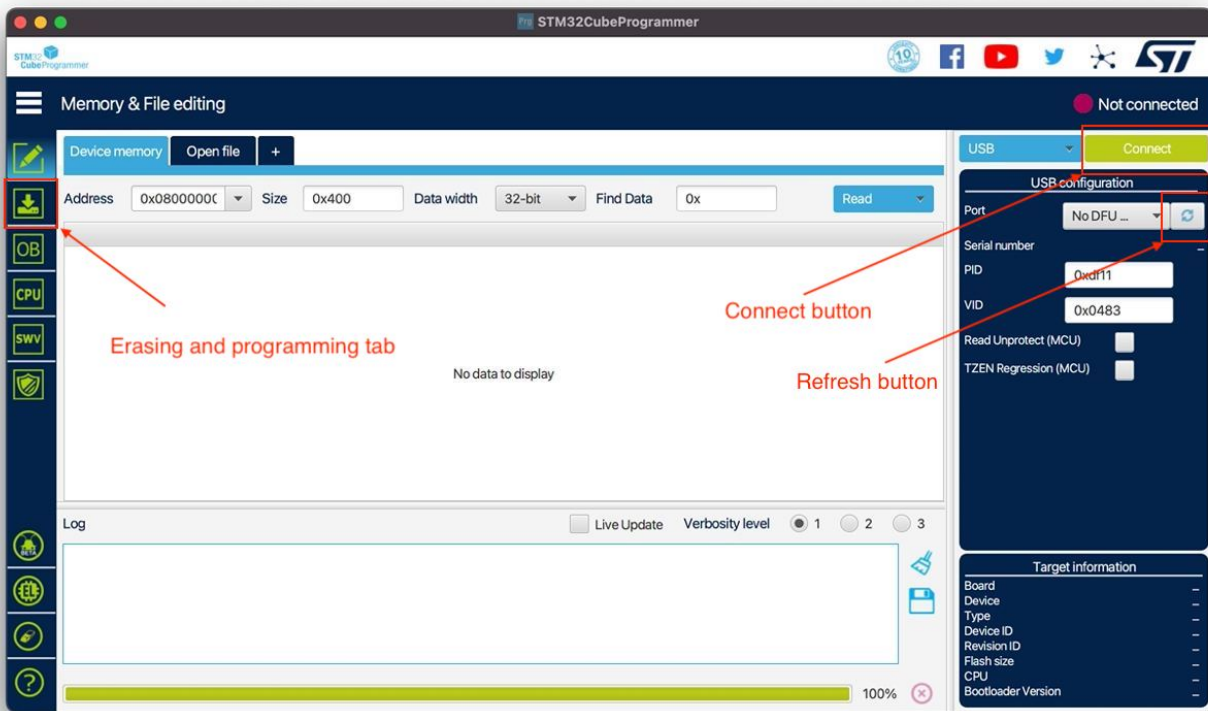
3.7 Type in your password and press enter.

3.8 The STM32CubeProgrammer software should now be in your Applications folder. Open it and you are ready to update your firmware.

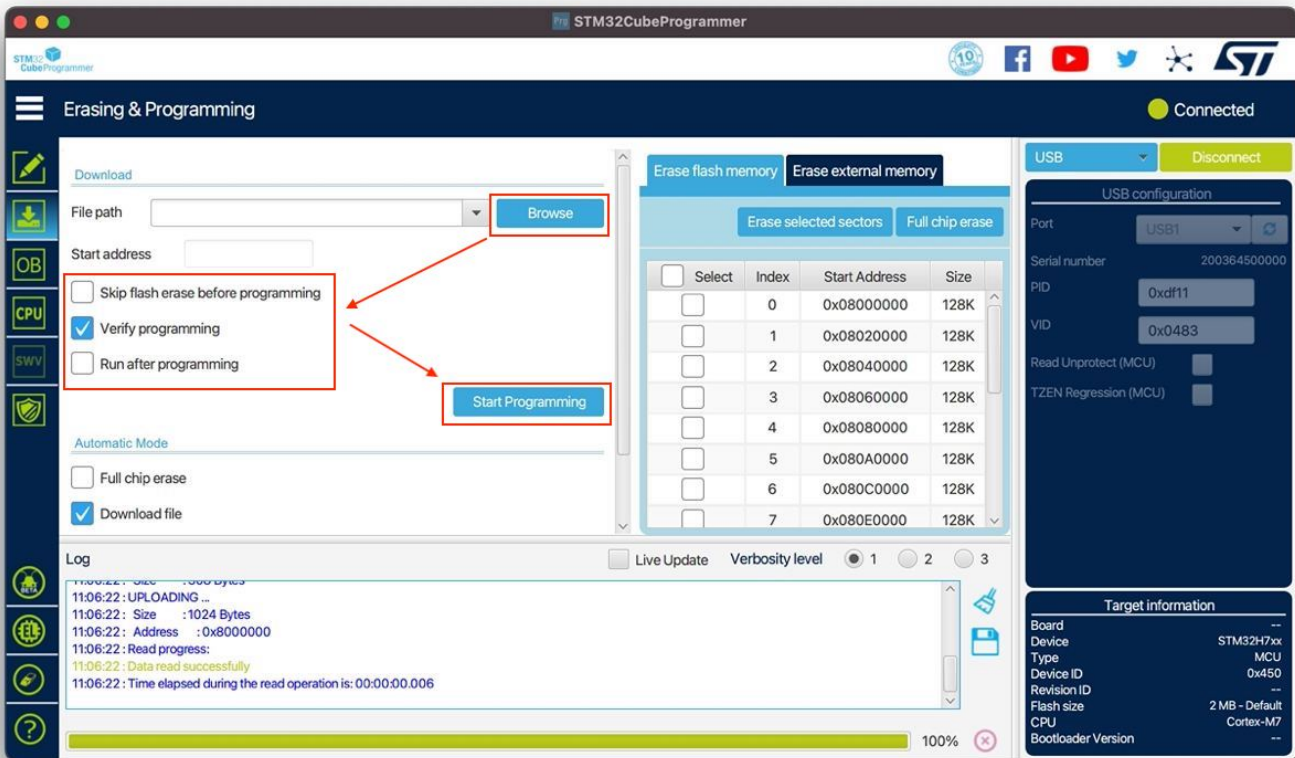
4. Open the installed application

5. Connect **ISE-NIN** to your computer with a USB cable, and turn it on with the SHIFT button pressed. The LCD should show that the unit is in DFU MODE

6. In the application, select USB in the pulldown menu and press the refresh button. You should see the Port changed from No DFU to USBx



7. Press the connect button and go to the Erase and Programming tab:



8. Press the browse button and select file ISENIN_X.X.X_1.hex.

9. Make sure that the check boxes are set as shown.
10. Press Start Programming and wait for the finish of programming and verifying
11. Close the popup windows and repeat steps 8-10 for file ISENIN_X.X.X_2.hex.
12. Press the disconnect button and restart ISENIN.

Note: STM32Cube Programmer may occasionally crash during operation. If it happens during programming, you may need to restart **ISE-NIN** and repeat steps 7 to 12.

10. MIDI CC CHART

CC#	DESTINATION	TYPE
5	LFO RATE	SLIDER
8	LFO DELAY	SLIDER
14	LFO TO VCO MODULATION AMOUNT	SLIDER
15	ENV TO VCO MODULATION AMOUNT	SLIDER
16	PULSE WIDTH MODULATION AMOUNT	SLIDER
17	VCO1 CROSSMOD AMOUNT	SLIDER
18	VCO2 PITCH RANGE	SLIDER
40	VCO2 FINE TUNE AMOUNT	SLIDER
41	HPF CUTOFF	SLIDER
42	VCF CUTOFF	SLIDER
43	VCF RESONANCE	SLIDER
44	VCO MIX	SLIDER
45	VELOCITY AMOUNT LOWER	KNOB
46	VELOCITY AMOUNT UPPER	KNOB
47	ENV TO VCF CUTOFF MODULATION AMOUNT	SLIDER
48	LFO TO VCF CUTOFF MODULATION AMOUNT	SLIDER
55	ENV1 SUSTAIN LEVEL	SLIDER
56	ENV1 RELEASE TIME	SLIDER
57	AFTERTOUCH AMOUNT UPPER	KNOB
58	AFTERTOUCH AMOUNT LOWER	KNOB
59	VCF KEY FOLLOW MODULATION AMOUNT	SLIDER
60	VCA LEVEL	SLIDER
61	ENV1 ATTACK TIME	SLIDER
62	ENV1 DECAY TIME	SLIDER
65	ARPEGGIO RATE	SLIDER
66	PORTAMENTO TIME	SLIDER
67	MASTER TUNE	KNOB
68	LOWER/UPPER BALANCE	KNOB
69	ENV2 ATTACK TIME	SLIDER
70	ENV2 DECAY TIME	SLIDER
71	ENV2 SUSTAIN LEVEL	SLIDER
72	ENV2 RELEASE TIME	SLIDER
73	MASTER VOLUME	KNOB

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