Dreadbox & Polyend Medusa

Medusa
Version: 4.0.1

Desktop Hybrid Synthesizer

Index:

4.0.1 Addendum

Download the Medusa Hybrid synth v4.0.1 firmware manual addendum as PDF.

Medusa v4.0.1 firmware update brings major feature updates among the general improvements:

- A new, fourth, play mode. A gritty 6-voice 3-operator digital FM synth engine with a 12-bit colored classic vibe. It supports five digital FM Algorithms and an extra analog voice. Comes with a new FM preset bank!
- Improved Channel per Voice mode where each channel is now truly “per voice”, and not “per oscillator” as previously,
- Added MIDI Program Change for better control of the synth,
- Reworked pitch bend and glide for more musical output,
- Full LFO Synchronization with MIDI Clock with increased stability,
- Added a per-preset option to “Skip muted voices” during voice selection in P1 and P2 mode.

Download the v4.0.1 firmware and check the detailed changelog.

https://www.youtube.com/embed/ZgJ5lZqQ2Wo?feature=oembed
https://www.youtube.com/embed/qIHmKU7PS1g?feature=oembed
https://www.youtube.com/embed/YzBTBrXpGGo?feature=oembed

Quick start / Tips & tricks

- Turning on/off LFO or Envelope – Double click the LFO or Envelope button.
- LFO and Envelope linking – Hold LFO or Envelope button and nudge the parameter you want to modulate.
- Additional 5 LFOs – Press LOOP in Envelope section. Each of 5 Envelopes can serve as LFO.
- Parameter locks per step – Parameter locks per step – Grid mode on > press REC > press Pad > apply synth parameters.
- Custom scales (incl. micro-scales) – Grid mode on > press REC > hold Pad > turn the encoder to change Pad’s note. To apply micro-scales, use OSCs FINETUNE.
- TIE/Note length – Grid mode > press REC > hold Pad > click encoder.
- Drone mode – Note mode > P2 play mode> press HOLD > use pads to toggle on/off the notes > apply LFOs and Envelopes.
- Arpeggios / Sequence transposition – Note mode > while playing the sequence hold the HOLD button and select Pad (note).
- Randomizing melody in chosen scale – Note mode > press REC > press a RANDOM button and confirm with the encoder.
- Randomizing synth voice – Note mode > press RANDOM and confirm with the encoder.
- Randomizing parameter locks per step – Grid mode > press REC > press RANDOM and confirm with the encoder.
- Randomizing note per step – Grid mode > press REC > hold Pad and click encoder until you see RND. The randomised note is filtered by the scale.
- Copying steps – Grid mode > press REC > hold target(copy) step for 2 seconds > select destination (paste) pads.
- Clearing notes from sequence – Grid mode > press REC > hold HOLD > select steps where you want the notes to be cleared. Using encoder, you can also clear all notes.

- Clearing parameter locks from sequence – Grid mode > press REC > hold CLEAR > select steps where you want the parameter locks to be cleared. Using encoder, you can also clear all parameter locks.

Introduction

https://www.youtube.com/embed/rqveFjGaZq4?feature=oembed

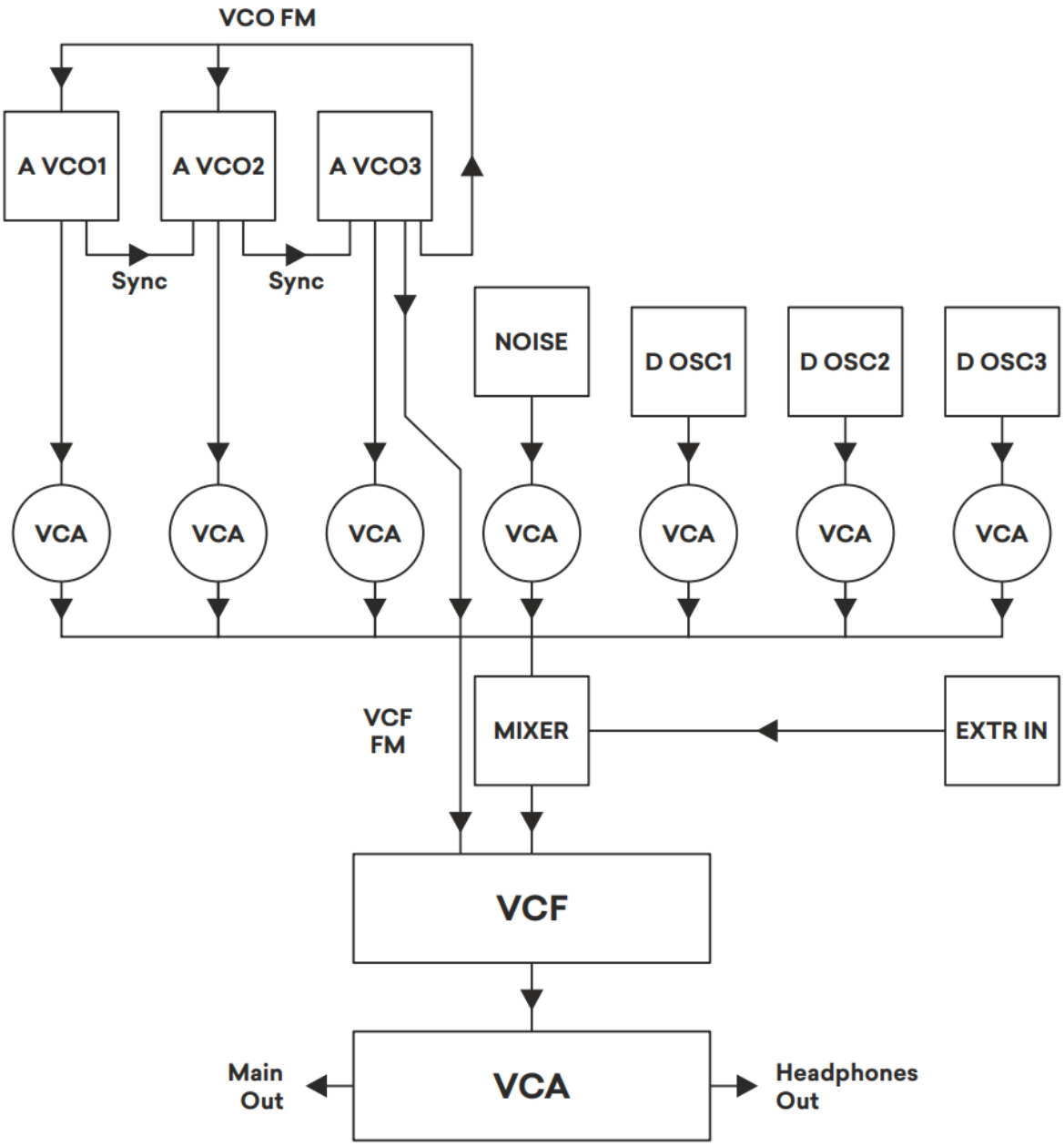
The Medusa Hybrid Synthesizer is a fruit of a collaboration between Dreadbox and Polyend companies. It has emerged from both teams an unusual approach to integrating analog and digital domains into a new quality. The innovative way of connecting a classic synthesis character with the digital versatility and unique musical controller brings out the best of these two worlds. Medusa is offering a hybrid analog-digital sound engine, which can be used in monophonic or one of two polyphonic modes, and a Grid controller which can be used for performance or sequencing.

The Grid is what makes Medusa unique. It allows not only to configure it as a custom pad controller but also store more than a hundred parameter locks per pad. This gives access to programming own kits of sounds in a single preset, you can then manually trigger them or easily create complex-sounding sequences.

All that analog and digital functionality are merged in a one clearly marked layout sealed in a sturdy tabletop aluminium chassis. Handily placed aluminium covered knobs, informative LED buttons for the comfort of use. The Grid low profile pads are made of specially designed silicone, so their immaculately matched density and firmness are providing an instant and precise response. It’s all about innovation, revealing new quality and ideas in music. We hope it will encourage its users for further exploration of the sonic activities.

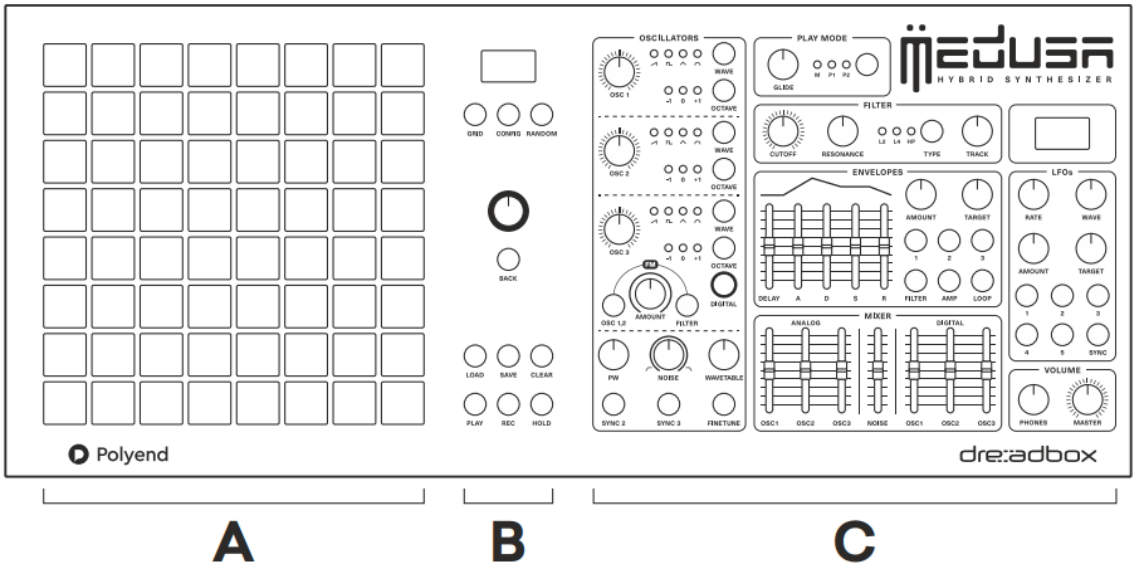
The Medusa has a hybrid 3+3 structure coupling the sound of analog with the control of digital: three voltage-controlled analog and three digital wavetable type oscillators with a total of six voices. There’s also an additional noise source as well, with adjustable colour. The synthesizer is equipped with:

- A multimode analog filter with 2-pole LP, 4-pole LP, and 1-pole HP settings.
- A unique Grid controller – 8 x 8 grid of side-to-side (X), up-and-down (Y), and pressure-sensitive (Z) pads used to play the synthesizer and program the 64-step sequencer, which can be used as a classic keyboard but also allows you to configure it up to your needs almost without limits.
- 3 play modes including 1-voice, unison mono (up to 6 oscillators), 3-voice (2 oscillators per voice), and 6-voice (1 oscillator per voice).
- 5 loop-able envelopes (3 assignable) and 5 LFOs (all assignable and able to send out MIDI CCs).
- 2 OLED displays providing visual feedback on knob and slider settings; envelopes and LFOs; menu and configuration settings.
- Ability to save up to 128 programs and sequences (which you can dump/load into a single file using Polyend Tool).



Overview

Medusa interface can be split into three main sections for working with the synthesizer and the Grid controller.



- Section A

The Grid performance pads – the 8 x 8 grid of buttons that can be used to play the synth, program the sequencer, and select storage locations for Grid data and Medusa programs. Unlike conventional keyboard synths, the use of the Grid allows you to lock parameters and musical scales to steps in the sequencer, and then also to use elaborate scale mappings and expression options to put sounds beneath fingertips. The Grid and one-press modulation and envelope assignment make the Medusa a portal to sound design, composition, and performance.

- Section B

This section of the Medusa is used to program, play, and edit the sequencer as well as to configure various settings for the sequencer and the synth. The screen at the top of this section (referred to as the seq screen in this manual) displays the assorted menu choices for configuring the sequencer and synth.

- Section C

This section of the Medusa is used to program the various parameters and settings for the synth engine. The screen in this section (referred to as the synth screen in this manual) displays various information about patch settings (including knob and slider values) while they are being changed or edited. As for modulation, there are two fixed envelopes (filter and amplitude), plus three easily assignable envelopes. There's also five assignable LFOs. The concept was to mix analog with digital and noise in different combinations, which can be layered as monophonic lines or chords, or trigger in turn, with always-accessible mixer controls for each voice.

It's clearly visible that the workflow fits spatially. On the left side, the Grid which can be configured for sequencing and performance. Use its sequencer as a kind of sketchpad for ideas since all the sequences and modulations are saved into presets. On the right, one can sculpt sounds and make on-the-fly assignments of LFOs and envelopes with just one press. Mix oscillators and shape envelopes, then dial modulation live atop that.

Medusa is requiring a learning curve at first, and it surely takes some time to get into it. But as one start to feel comfortable with the sound engine, and adapt to our way of thinking about the Grid pads (as a performance controller and separate note and parameter sequencer), it starts to be amazingly rewarding. Once there, you'll gain access to a capable and sometimes wild (especially with the randomisation functions)

instrument beneath fingertips. The result of our collaboration is something that’s really unique and creative. The combination of deep digital and analog sound engine combined with the superb Dreadbox filter. Additionally, all its modulation, sequencing and performance possibilities make the whole new sonic territory – something we hope you will want to learn how to practice and play. It’s a suitable choice both for sound designers and instrumentalist.

The goal was not to compete with great gear made by other manufacturers. Medusa was supposed to be unlike any of the existing tools. Both with its unique and expressive controller and its copious controls and access to sound. The plan was to make some new field for synth innovation by merging all this functionality into a desktop form factor and to give full digital control over it in order to bring fun and inspiration.

Inputs and Outputs

The Medusa is equipped with both MIDI in/out/thru and USB ports, and it will receive and send out notes, CCs, clock and transport start/stop messages corresponding to Medusa’s sequencer Play button. Use Medusa as a MIDI controller and send out the pads MPE functionality. There is also a 1/4 inch jack for the main output (mono), a 1/4 inch jack for headphones, and a 1/4 inch jack for inputting an external audio signal before the Medusa filter (in order to hear the incoming audio, a gate needs to be opened by a press of the pad or by running sequence containing notes).

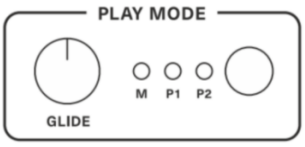
https://www.youtube.com/embed/RnsF8CBYdHM?feature=oembed

Synthesizer

After toggling on, Medusa unit will proceed with an initial auto-calibration process, the pads will pulse and there will be a progress bar visible on the top of the middle screen. If for any reason this process takes too much time, break it with a press of the ENV1 button.

The synth engine is versatile, the Polyend digital oscillators stack give a metallic edge and a sonic wavetable enhancement on top of a thick 3-oscillator analog sound. The copious modulation and multiple envelopes provide loads of sound design possibilities. Since basically everything is assignable to LFOs or envelopes, one can really go deep with this. Combining digital control and wavetables with Dreadbox supplied classic analog vibe make the Medusa as much an all-in-one tool as a polyphonic synthesizer.

Play modes and Voice Priority



The Medusa offers 3 different play modes:

M monophonic – this mode runs all 6 oscillators (3 analog and 3 digital) through the filter in one thick, mono voice (1 shared filter and envelope and 1 shared amp envelope).

P1 polyphonic one – this mode allows to play up to 3 voices, with 2 oscillators per voice (pairing A OSC1 with D OSC1 for voice 1, A OSC2 with D OSC2 for voice 2, etc. 1 shared filter and envelope for all voices and 1 shared amp envelope).

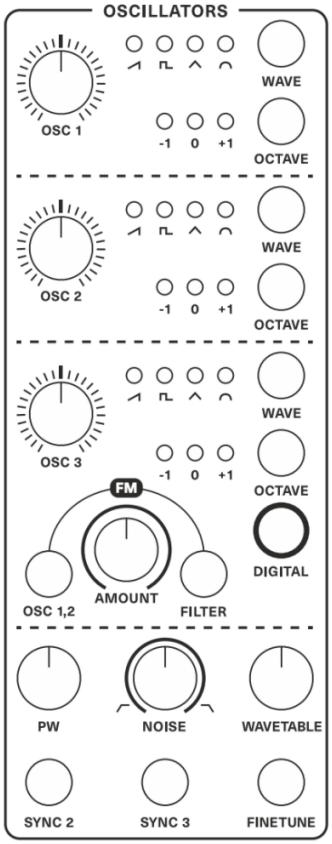
P2 polyphonic two – this mode allows to play up to 6 voices, using 1 oscillator per voice, assigning oscillators to chordal voices in sequential order (the first 1st note in a chord will start with A OSC1 and continue to the 6th note using D OSC3. 1 shared filter and envelope for all voices and 1 amp envelope per voice – 6 in total).

For both P1 and P2 modes, it's possible to toggle the Voice Priority between First and Next. With the First setting whatever note is played will grab the first available A OSC, D OSC or pair of OSCs. While playing monophonically in P1 or P2 (one note at a time), it will only use that first oscillator. With the Voice Priority set to Next, Medusa will rotate through the available oscillators, allowing longer releases to sound. These settings are accessed through the Config menu.

The Glide knob allows the adjustment of how quickly note or notes will glide to their intended pitch.

Oscillators

The Medusa is equipped with 3 analog oscillators and 3 digital oscillators (referred to as A OSC1, A OSC2, A OSC3 and D OSC1, D OSC2, D OSC3 for this manual and the menu options in the Medusa). The OSC 1, 2, and 3 knobs allow tuning either oscillator 12 semitones (an octave) up and down, or with the Fine-tune button pressed and lit, the knobs will tune 100 cents up and down.



The oscillator section does double duty as both analog and digital controls, so it will be helpful to understand how those relate. There's a button labelled Digital in the oscillator section. With digital mode off, one controll the three analog oscillators, plus a PW (pulse width) control, and a frequency modulation control for FM between oscillators 1 and 2. Select from the saw, pulse, triangle, and sine waves for each oscillator. Hard sync oscillators 1 to 2 (Sync 2) and 2 to 3 (Sync 3) is available too.

With the digital mode is on, control the three digital oscillators and get access to wavetables in addition to the four classic wave shapes. The fifth setting when the wavetable mode for an oscillator is selected is indicated when all four of the LEDs next to the wave illustrations will light up. Select one from the 64 wavetables per all three digital oscillators via the Preset menu. Wavetable position can be automated with envelopes and/or LFOs or modulated manually with the use of a dedicated Wavetable control knob.

The FM knob has two functions, also via switches. When the OSC 1, 2 button is pressed, the FM knob controls the amount of exponential frequency modulation for A OSC 1 and A OSC 2 with A OSC 3. When the Filter button is pressed, the FM knob controls the amount of frequency modulation of the filter cutoff by AOSC 3.

The PW knob allows manual adjustment to the pulse width of the pulse wave for the 3 analog oscillators, from 50% to 95%. This same value is applied to each oscillator but doesn't affect the digital oscillators. The pulse-width can also be modulated by both envelopes and LFOs

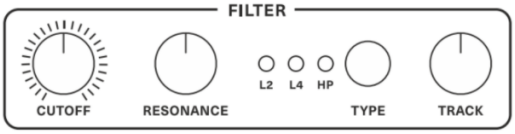
The Noise knob is setting a balance between brown noise (low-pass 6db/oct) and violet noise (high-pass 6db/oct). In the middle position, it offers grey noise (notch filtered) equally mixing both the low-pass filtered noise and the high-pass filtered noise.

Note:

- There's no FM between digital oscillators 1 and 2 nor pulse width for them either. All the other controls are doubled as well.

- Medusa needs some warmup time for these analog oscillators to be in tune. There’s also an automated calibration to tune-up. When the pads are not in use an auto-calibration routine is launched, tuning the analog oscillators. This is indicated by a small dot in the top of the sequencer screen in section B of the Medusa. From the Config menu, calibration can also be manually started if required.

Filter



The Medusa comes with a switchable, 3 state filter, offering 2-pole (12dB/oct) low pass (LP), 4-pole (24dB/oct) LP filter, and 1-pole (6dB/oct) high pass (HP) settings. Both resonance and tracking settings offer further control of the filter, and the filter can self-oscillate.

Use the Cutoff dial to control the cutoff frequency of the filter, the Resonance knob to apply resonance to the filter, and lastly use the Track knob to adjust how much or how little the filter tracks to the keyboard.

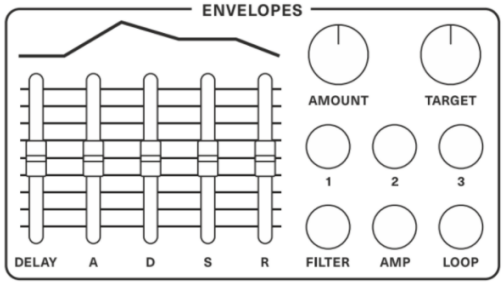
The self-oscillating analogue filter can really scream, especially paired with frequency modulation. When the resonance is turned up and handle the Track on the filter, a self-oscillation that’s mapped to the pitch range will occur (turn down the master volume).

Modulation

The Medusa is offering a lot of modulation options. Five separate envelopes, and five separate LFOs. Since there’s only one set of knobs and sliders, choose which envelope or LFO to target. Toggle that modulation on and off by double-clicking the controls for each and choosing the modulation target (by browsing a list or simply holding down an envelope or LFO button and twisting the parameter for a target, which is probably much more fun than using the menus). The LFO shapes morph between square, sine, ramp, and triangle. The envelope is capable of shaping the drum sounds as well as long soft pads.

Envelopes

The Medusa offers 5 loop-able, Delay-A-D-S-R envelopes, with the 4th (Filter) and 5th (AMP) envelopes being dedicated to the filter and amplifier respectively. All the envelopes can be assigned to modulate a list of targets (see Appendix A: List of Modulation Destinations).



To activate and use envelope 1, 2, 3, or the Filter envelope (the AMP envelope is always on), double click the corresponding button, and the synth side screen will show the word “ON”. To turn off an envelope, simply double click it again.

To link the slider controls to a particular envelope, press and release the button for that envelope (1, 2, 3, Filter, or AMP). When adjusting the sliders, the light for the controller envelope will blink, and the shape of the envelope will be displayed in the synth screen.

The Amount knob allows control over how much the envelope affects or modulates the target, and the Target knob allows to choose which envelope will modulate (see Appendix for List of Modulation Destinations).

A shortcut for linking an envelope with a target is to press and hold the desired envelope button and move the knob or slider associated with the parameter. This also works for LFOs.

Offering even more flexibility, by pressing the Loop button, the envelopes can be set to repeat or loop, behaving more like shapeable LFOs, where the LFO shape and rate is defined by the Delay-A-D-S-R values and how fast or slow the envelope cycles through each stage.

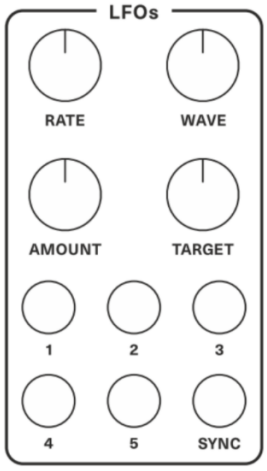
Note:

- In order to add the FM modulator as a target for ENVs and LFOs, choose from OSC 1,2 and Filter buttons instead of the Amount knob.

https://www.youtube.com/embed/fGV2QUUY1rQ?feature=oembed

Low Frequency Oscillators (LFOs)

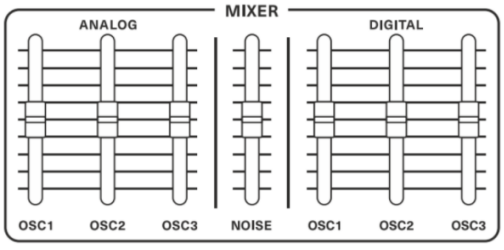
The Medusa has 5 LFOs, with each LFO capable of variably sweeping through sine, pulse/square, saw (ramp-up), triangle, reverse saw (ramp down) and random S&H waveforms. When adjusting the Wave knob to sweep through the waveforms, the synth screen will display the shape. LFO rates range from .01Hz to 30Hz and can be assigned to a list of parameters selected with the Target knob or using the assigning shortcut.



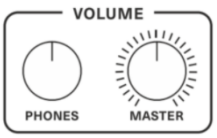
The buttons numbered 1 through 5 allows to quickly select each of the independent LFOs, and the 4 knobs allows to control the LFO RATE, the LFO Wave, the LFO Amount (amplitude), and the modulation Target for each of the LFOs. When lit, the Sync button will force the LFOs to synchronise with the overall clock setting of the sequencer and change the values displayed with the Rate knob from Herz to note values.

Mixer and Volume

The Mixer gives access to balance the output levels of the 3 Analog oscillators OSC1, OSC2, and OSC3; the Noise source; and the 3 Digital oscillators OSC1, OSC2, and OSC3. When the Mixer amplitude is turned down to the minimum for any oscillator, that oscillator is actually switched off not just muted.



The Phones knob gives control over the volume for headphones plugged into the headphone jack, and the Master dial allows the control over the volume from the line out on the back of the Medusa.



Important – the autocalibration process indicated by a small dot on the middle screen of the Meduza unit which is being commenced once in a while (only when the instrument’s sequencer isn’t running and when

the pars are not being played the Grid pads) can in some cases cause a noticeable high-pitch noise on the headphones output. Such leaking is present due to the Dreadbox analogue board design. This auto-tuning sound is not present on the Master output.

Grid Controller

The Grid, in general, was made to be expressive and inspiring. The low profile pads are nicely sensitive and allow easily fingers strumming across. They work great for playing live, with the option of applying up to three pressure axis for an additional expression (X and Y for the position, Z for pressure, only the last pad adds modulation).

Try one of the 39 included scales, which include both various exotic options and some classic modes like the Japanese and Engimatic scales. Change not only the scale but the layout (the relationship of notes on the pads). As an external controller, Medusa does support MPE mode and can be used with compatible devices as MPE controller.

The Grid is a performance and editing interface as much as a sequencer. Sequences can have a length from 1 and 64 steps (a 1-step sequence is basically a repeat function, with a few steps, a sort of fixed phrase arpeggiator). Steps are fixed to the rhythm, there are no sub-steps divisions. Tempo ranges from 1-300 BPM. There’s a swing control, plus different sequence playback directions.

With the Grid sequencer ability of parameter locking per pad, one not only gain access to a powerful step sequencer page dedicated to parameter control but can start to think of presets as something that can be played in a live manner. But first things first, let’s start from the very basics.

How it's all organised

To understand Medusa, it is important to understand how it organises, stores and works with data.

Medusa preset contains:

- Data related to the sound the synthesizer makes,
- Sequence and all the Grid settings and values.

Conceptually, the Grid consists of:

- 8 x 8 matrix of pads used to play notes and store parameters,
- Note data determining what the sequencer plays,
- Parameter locks are modulating the Medusa sound on the fly or program parameters to modulate the synth patch with each step of the sequencer.

Each pad/step on the Grid matrix can contain note data (chord, TIE, RND), preset Modifying Data, both, or neither.

The sequencer of the Medusa can be programmed, controlled, and edited by the 8 x 8 grid of silicon pads and the collection of knobs and buttons positioned to the left of the grid.

The pads are numbered 1 to 64, starting in the top left corner (pad 1) and ending in the bottom right corner (pad 64). When a sequence is built or recorded, the first step or note value is stored in pad 1, the second step or note value is stored in pad 2, the third in pad 3, and so on. An eight-step sequence would have the note values stored in pad 1 through pad 8. A sixty-four step sequence would have the notes stored in pad 1 through pad 64.

Grid and Notes modes

There are 2 modes to work with the 2 types of Grid data: Grid mode and Notes mode. The Grid mode is used to program and edit any Patch Modifying Data, and the aptly named Notes mode is used to program and edit the notes of the created sequences. By default, the Medusa starts in Notes mode, and this mode is indicated by the sequencer OLED screen displaying “Notes Mode” in the top left corner. To enter the Grid mode, simply press and release the Grid button. The Grid button will now be lit, and the sequencer screen will display “Grid Mode” in the top left corner.

While the Note mode works more in a classic keyboard controller manner, the Grid mode is by default empty and pressing pads won’t produce any sounds unless programmed first or some notes are already recorded in the Note mode. As each of the steps/pads in the Grid model can hold up to 118 parameter locks and store from one note to six-note chords, users are able to configure the Grid totally up to their needs. Program chord progressions and then manually trigger or sequence them. It can hold both steps with and without notes which can just modulate the synth engine in real-time. The Grid is a really powerful and versatile tool that one can adjust freely

Use the Grid mode for triggering in many different ways. Play pads to trigger different sounds or even map an ensemble of sounds. Set up particular pads for percussion, and others for bass notes or chord progressions for instance). Grid mode also allows other features, like making your own musical scales with the ability to store fine-tuned pitches per pad.

The Grid mode also offers a way to see where notes, tie and patch modifying data are stored. In GRID mode, if a pad is lit:

- 75% -contains Note/Chord,
- 50% -contains only TIE data,
- 0% -is empty or contain parameter locks only (press Clear button to display).

Important:

- In order to edit the particular modulators, when in Edit mode (Rec. is blinking) hold the Clear button and nudge a selected knob/slider/button to see if any of its parameter locks are existing in the sequence.
- Bend between notes by targeting Pitch with the X-axis for example. Just make sure to keep its adjustable range manageable and slide between notes (in this case we suggest a value of just 1 or 2 instead of the full 100, this way it will slide over the whole pitch range).
- In the Grid mode, one not only can trigger modulation live over a sequence, but can also use those triggers to modulate X, Y, and Z targets of choice while the sequence plays.

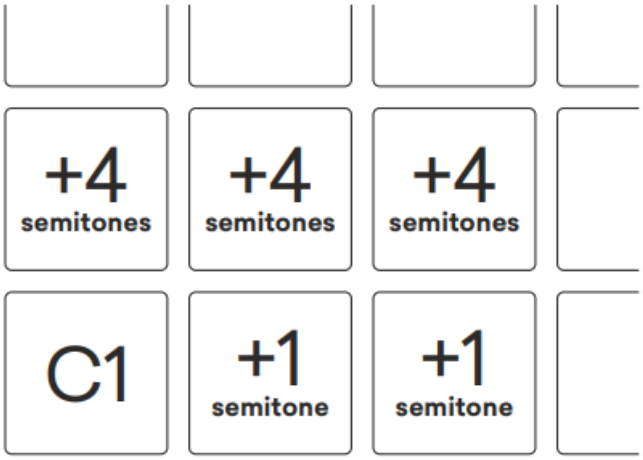
Pads as a keyboard

The 8 x 8 grid of velocity-sensitive silicon pads can also be used to play the Medusa, using one of 40 predefined musical scales and modes (see Appendix C: List of Modes and Scales for the complete list of options). Just put the Medusa in Notes mode (ensure the Grid button isn't lit), and start hitting the pads to make beautiful music. In addition to playing a note, each pad can modulate up to 3 different targets based on side-to-side motion (X), up-and-down (Y) motion, and pressure (Z).

Notice that X, Y & Z targets are being modulated by the last pressed pad only.

The playable matrix of pads is laid out with the lowest note value being in the lower left pad (pad 57), incrementing a semitone with each position to the right. If pad 57 were a C1, then the next note on pad 58 would be a C#1, pad 59 would be a D1, and so on until pad 64 which would be a G1.

How the adjacent pads change pitch depends on the chosen Layout from the Preset Menu. Choose a pad, and the pad directly to the right will increase the pitch one semitone regardless of the chosen Layout. For Layout 1, the pad directly above will increase the pitch 1 semitone. For Layout 2, the pad directly above will increase the pitch 2 semitones. For Layout 4, (see the illustration) the pad directly above will increase the pitch 4 semitones. And so it goes, up to Layout 7 where the pad directly above will increase the pitch 7 semitones.



Keyboard layout 4

When not in Grid mode (when the pads are behaving like a keyboard), the pads corresponding to the root and octave notes will be lit, indicating which keyboard layout is selected.

https://www.youtube.com/embed/92KEv-GwO_I?feature=oembed

Creating & editing a sequence

With a sequence playing, it's possible to toggle between play modes (unison and polyphony), the Voice Priority setting (first or last, in either of the polyphonic modes), or sequence length, all live without impact sequenced playback. The sequencer only triggers preset changes when the Grid mode is enabled. Start a sequence, then toggle sequenced parameters on and off by switching Grid mode on and off.

Think of combining this with live-triggered parameters. Try blending the glide parameter in the polyphonic modes, adjust the amplitude envelope Release in order to create overlapping portamento effects. But again, let’s start from the very basics.

Creating a sequence is an easy process that can be approached in a few different ways. To start from scratch, simply pick an empty program, or clear any notes or parameter locks from an existing one. Choose the length, the sequence mode, musical scale, swing and then:

- Hit the Record button and start playing in the notes or chords with the pads or an external midi keyboard. This way a sequence will record in an incremental way. Use the Clear button in order to skip a pad and leave a pause.
- When the sequencer is running, press the Record button and start playing the pads to record notes and chords in an “overdub” manner. The real-time modulations of the synth encoders will also get recorded then.
- In the Grid mode – edit the sequences recorded in the Notes mode, copy the steps and apply the parameter changes per step.

How to

Clear all Notes and parameter locks in the Grid mode.

1. Press the Record button (it should be blinking if active).

2. Press Hold + Clear and hold.

3. On the sequencer screen “Clear Notes & param” appears, and using the Knob-Button, select “all steps”.

4. All note and patch modifying data should be deleted.

Set up the sequencer in either Notes and Grid modes.

1. Press the Menu Button to access the Preset menu and set up the Tempo, Seq length, and Seq mode.

2. Select and click Seq length from the menu and set the length (1-64) by dialling a value with the Knob-Button or pressing the pad that will be the last in the sequence.

3. Select and click Tempo from the menu and dial in the desired BPM value (min 1 to max 300).

4. Select and click Seq Mode to select Forward, Backward, Ping Pong, and Random.

Enter sequencer notes (Notes data) in the Notes mode.

1. Press the Record button (it should be blinking if active).

2. Play the notes with either the pads or an external MIDI keyboard (to enter a blank or rest for a step, press the Clear button instead of a key or pad).

Edit sequencer notes (Notes data) in either Notes and Grid modes.

Edit notes from both the Notes mode and the Grid mode.

From the Notes mode:

1. Press the Record button (it should be blinking if active).

2. The current active pad will also be blinking. Dial the Menu Button to change the active pad to the step/pad to edit.

3. Play the new note either from the pads or an external MIDI controller.

From the Grid mode:

1. Press the Record button (it should be blinking if active).

2. Press the step/pad which is about to change and hold it. The note will sound and the screen will display which step it is and what the note value is (e.g. G3, C2, etc).

3. While pressing the pad, dial the Menu clickable encoder to select a new note. The screen will display the notes as they got scrolled through them.

- Click down the menu encoder to set the note length using the TIE function or add random changes of the note or chord root note under the desired step/pad by using the RND function.
- The note randomisation will be related to the chosen musical scale in a range of two octaves.
- The RND function used on a pad/step without an existing note will trigger notes randomly chosen from the set musical scale scattered thru all the available octaves.

https://www.youtube.com/embed/NMCINwD1_Bw?feature=oembed

Copy sequencer notes and parameter locks (from one step or pad to another) in the Grid mode.

1. Press the Record button (it should be blinking if active).

2. Press the pad to be copied and hold it (both note and parameter locks will be copied). After a couple of seconds, the screen will indicate the step and note were copied.

3. While still pressing the first pad (the one to copy), press the second pad where to copy the data to.

4. The screen will show a message that the first step was copied to the second step (e.g. “Step 3 copied to 2”).

https://www.youtube.com/embed/pfhBorC5cs4?feature=oembed

Start/Stop sequencer in either mode.

1. Press the Play button to start the sequencer. The Play button will be lit when the sequencer is playing.

2. While the sequencer is playing, press the Play button again to stop it.

3. If the sequencer is stopped and restarted, it starts from the beginning of the sequence, not where it stopped.

Enter parameter locks in the Grid mode.

1. Enter the Edit mode by pressing the Record button (it will be flashing).

2. Press and hold the pad to select where to enter data (note: there doesn’t have to be note data already stored in the pad location; pads holding parameter locks only, can be used like programmable buttons to instantly modify synth parameters on the fly).

3. Adjust any of the synth parameters. The pad will now have basically a “snapshot” of programming parameters.

4. Lastly, if there’s a sequence already recorded, hit Play while Rec is active and record parameter locks by adjusting synth parameters and values while the sequencer is running.

Edit the parameter locks in the Grid mode.

1. Enter the Edit mode by pressing the Record button (it will be flashing).

2. Press the pad that contains the parameter locks to edit. Adjust the desired parameters (cutoff, resonance, octave, course tuning, LFO amount, etc).

3. When editing is done, press the Record button again to quit the Edit mode in order to avoid accidentally making unwanted changes/edits.

https://www.youtube.com/embed/JBAU6ccgMg4?feature=oembed

Clear the parameter locks in the Grid mode.

1. Press the Record button (it should be blinking if active).

2. Press the Clear button and hold it.

3. On the sequencer screen “Clear parameters” appears, and using the Menu Knob-Button, select either “selected steps” or “all steps”.

4. To clear only “selected steps”, press and hold the pads to delete, and release the Clear button.

5. To clear “all steps”, select it in the menu, and release the Clear button.

- Clear the parameter locks for the selected separate modulators only. Simply nudge a knob or slider to see if there is any automation saved for it on the Grid steps.

https://www.youtube.com/embed/EsIVcb3iUPw?feature=oembed

Delete sequencer notes in the Grid mode.

1. Press the Record button (it should be blinking if active).

2. Press the Hold button and hold it.

3. On the sequencer screen “Clear Notes” appears, and using the Knob-Button, select either “selected steps” or “all steps”.

4. To clear only “selected steps”, press and hold the pads to delete, and release the Hold button.

5. To clear “all steps”, select it in the menu, and release the Clear button.

Sequence transposing & Drone mode

Arpeggiate/transpose: transpose sequences while they are being played back by the sequencer by pressing and holding the Hold button and indicating the root note on the pads. With short sequences, this can be a bit like running an arpeggiator or phrase sequencer.

https://www.youtube.com/embed/6zI2fGDPo7A?feature=oembed

Drone mode: while the sequencer is stopped press the Hold button and it will light up, the pads will now work in a note sustain mode which is great for making ambient drones. Toggle the individual notes on/off while they're sustained. Now just fire up a couple of LFOs and ENVs, set lower clock value (especially for this reason one can go as low as 1 BPM). This model is interesting with different polyphonic modes and glide.

Use the pads to add some additional modulation to drones. Only the last pad pressed is triggering the X/Y/Z modulation.

https://www.youtube.com/embed/WZjyjb80-ZU?feature=oembed

Random button

The Random button allows randomization of Medusa's various synth and Grid parameter settings on three different levels. Take a look at the description chart below. Besides these functions. Set the RND per step function to add random changes of the note or chord root note under the desired step/pad by using the RND function.

Randomize OSC section Notes parameters in Notes mode.

1. Press the Random button.

2. Select "confirm".

3. Various synth OSC parameters including Wave, LFOs with all their values, wavetable position, Octave, Sync 2, and Sync 3 (including FM) will be randomized.

https://www.youtube.com/embed/SLtpuYVwdIQ?feature=oembed

Randomize Sequencer notes in the Note mode.

1. Press the Record button.

2. Press the Random button.

3. Select "confirm".

4. Randomized notes and null values (blanks) an octave above and below the "Root Note" (set in the Preset Menu) will be randomly generated for all 64 pads.

Randomize Parameter locks in the Grid mode.

1. Press the Record button.

2. Press the Random button.

3. Select “selected steps” or “all steps”.

4. The parameter locks will be randomized for all 64 steps.

https://www.youtube.com/embed/-DO85Yr6Wgs?feature=oembed

Presets

The Medusa allows saving up to 128 programs. Saving a program on Medusa is very easy. Once a sound and sequence are programmed, press the Save button, dial the Menu Button to select either Bank A or Bank B, press the pad where it will get saved (any of the pads 1 through 64), and then press the Save button again. The sequencer screen should say the pad number and “saved”. Loading the program is as simple as hitting the Load button, selecting the bank (Aor B), and then hitting the pad number to be loaded.) Copy the synth voice from one preset to another while the sequence remains. While in the grid mode press the record button and next press the load button, the current voice will get copied to the chosen destination.

It’s possible to dump/load the preset banks A and B into/from a file with the use of a Medusa Tool.

https://www.youtube.com/embed/j2ZmPLZjWWk?feature=oembed

Preset menu

All the basic and additional parameters for controlling and setting up the sequencer/synth preset can be viewed and modified through the Preset menu. To access the Preset menu for the sequencer, press the Menu Button (as shown on the previous page). Turn the knob to highlight the menu item to be selected, press the knob (clicked like a button), then select from the possible values, and then press the knob again to choose the wanted value.

The preset menu allows access to the following parameters:

Tempo (from 1 to 300 BPM): Set the tempo for the Medusa master clock, from 1 to 300 BPM. When the LFO rate is synced to the master clock it will change in relation to this value. We’ve decided to slow down the clock to 1 BMP as it’s really useful in the so-called Drone mode of the Medusa. Just remember when the tempo is set to 1 BPM as the sequencer might seem to be not working on such low a tempo.

Swing (from 25 to 75): A value of 50 is neutral and offers no swing to the note value.

Seq Length (from 1 to 64): A sequence can be 1 to 64 steps long.

Seq Mode (Forward, Backward, Ping Pong, Random):

- Forward – the sequence executes the total number of steps and then loops to start again (e.g. 1-2-3-4, 1-2-3-4, etc).

- Backward – the sequence starts at the last step of the total number of steps runs in reverse until it reaches the first step, and then loops back to the last step again (e.g. 4-3-2- 1, 4-3-2-1, etc).
- Ping Pong – sequence runs all steps forward, then all steps backwards, and loops to start again (e.g. 1-2-3-4, 4-3-2-1, 1-2-3-4, etc).
- Random – the sequence endlessly loops, randomly picking values from the total sequence length (e.g. 3-1-2-3, 4-1-2-1, 2-4-2-3, etc).

Scale (See appendix for a list of modes and scales): Offers the user a list of 39 modes and scales to use playing the synth.

Layout (1-8 & Guitar): Layout offers different intervals for how notes are laid out on the 8 x 8 Grid. Each possible value reflects the number of semitones between a pad and the pad just above it. (See 4. Using the Pads as a Keyboard for more information).

Root note (C1 – D4): Sets the root note of pad 57, allows the transposition of the entire range of notes the 64 pads can play.

Voice Priority (First, Next): This setting pertains to playing in P1 or P2 mode. With Voice Priority set to First, whatever note is played will grab the first available A OSC, D OSC or pair of OSCs. When playing monophonically in P1 or P2 (one note at a time), it will only use that first oscillator. With the Voice Priority set to Next, Medusa will rotate through the available OSCs, allowing longer releases to sound.

X Target PitchBend (See appendix for a list of modulation destinations). Allows assigning a modulation target to respond to either:

1. MIDI pitch bend values from an external MIDI controller.

2. Side-to-side movement of a pad. Can scale the amount from 100 to 100 (can only scale positive values for pitch bend).

Y Target ModWheel (See appendix for a list of modulation destinations). Assign a modulation target to respond to either:

1. MIDI mod wheel values from an external MIDI controller.

2. The up-and-down movement of a pad. Can scale the amount from 100 to 100 (can only scale positive values for the mod wheel).

Z Target AfterTouch (See appendix for a list of modulation destinations). Assign a modulation target to respond to either:

1. MIDI channel aftertouch values from an external MIDI controller.

2. Adding pressure to a pad. Can scale the amount from 100 to 100 (can only scale positive values for aftertouch).

Smoothing (On, Off): Turn on or off anti-aliasing for modulations programmed into the Grid when the sequencer is playing.

Wavetable (from 1 to 64): Select different wavetables to use with the digital oscillators. Note that D OSC1, D OSC1, and D OSC3 will all use the same wavetable that is selected from this menu option, though each digital oscillator with a wavetable can be modulated independently.

Config menu

The config menu is accessed by pressing the Config button directly under the sequencer screen and gives access to both basic and advanced functions of the synthesizer and the sequencer.

Set the Medusa to the MIDI channel per voice mode, where using an external multitrack sequencer or DAW it's possible to sequence all the six Medusa oscillators separately which extends the way one can use the instrument radically.

The MIDI menu allows setup the Medusa as a powerful MIDI controller too. Not only the pads can be used as an MPE controller for external software and hardware synths, but the sequencer is also sending out its content and every slider, knob and button are also able to send out the CC signals. The velocity-sensitive pads and their X, Y and Z functionality can be also precisely adjusted in order to control external instruments. There's also a MIDI Local off function available so one can use the Grid as a separate controller/sequencer while controlling the Medusa's synth engine externally. And a feature which allows using all the internal LFOs and ENVs to transmit their values as a MIDI source to modulate external gear. These additions make the Medusa a really powerful companion for other instruments.

MIDI Clock in (Internal, USB, MIDI): Choose the incoming MIDI clock data from internal or through MIDI out and the USB connection.

MIDI Clock out (Off, USB, MIDI): Choose the send of MIDI clock data through MIDI out and the USB connection.

Transport in (Off, USB+DIN, USB, MIDI): Choose the incoming start and stop messages from the chosen external sources.

Transport out (Off, On): Choose to send start and stop messages through MIDI out and the USB connection.

MIDI Channel In (All, 1-16, Off, Channel per voice): Select if the Medusa receives MIDI data on all channels, on one channel (1 through 16), or it doesn't receive MIDI data. Additionally – Channel per voice allows to control, play and sequence each of Medusa's oscillators on a separate MIDI channel form 1 to 6 (fixed) with external gear. This works in P2 mode only. Please, notice that when this function is toggled on the Medusa pads won't play polyphonically.

MIDI Channel Out (Off, 1-16, MPE): Select the channel that Medusa will transmit MIDI data out or to turn off MIDI out. There is no soft MIDI thru. MPE is enabling MIDI Polyphonic Expression of the Medusa's pads to control external devices.

CC input (Off, USB+DIN, USB, MIDI): Determines if Medusa is receiving the MIDI CC modulation signals through MIDI and the USB connection.

CC output (Off, USB+DIN, USB, MIDI): Determines if Medusa is sending the MIDI CC modulation signals through MIDI and the USB connection.

ENV CC (Off, from 1 to 127): send MIDI CCs with separate settings from each ENV to modulate external instruments.

LFO CC (Off, from 1 to 127): send MIDI CCs with separate settings from each LFO to modulate external instruments.

MIDI Local Off (Disabled, Pads + seq, Pads + seq + knobs): Use the Medusa Grid to play another instrument being able to play the internal synth engine with an external controller at the same time. Pads + seq – detach

Grid pads and sequencer from the internal synth engine. Pads + seq + knobs – detach Grid pads, sequencer and all the potentiometers from the internal synth engine.

X Range (from 0 to 100): Adjusts the range of MIDI out pressure for the X-axis on the Grid pads.

Y Range (from 0 to 100): Adjusts the range of MIDI out pressure for the Y-axis on the Grid pads.

Z Range (from 0 to 100): Adjusts the range of MIDI out pressure for the Z-axis on the Grid pads.

Middle C (C3-C6): Choose the middle C note for the Grid pads as a MIDI controller.

Pot. Mode (Absolute, Preset value): Choose whether a control changes a parameter immediately (Absolute) or has to pass through the preset value before it changes (Preset value).

X mode (Absolute, Relative): Choose whether the side-to-side movement of the pad fully controls/modulates the target or only relative to its initial value.

Y mode (Absolute, Relative): Choose whether the up-and-down movement of the pad fully controls/modulates the target or only relative to its initial value.

Velocity (Soft, Medium, Hard): Sets the level of velocity for the Grid pads and external controllers.

Firmware: Displays installed firmware version.

Credits: Displays the Medusa production credits.

Calibration: Performs the manual calibration and tunes the analog oscillators.

Important:

- Notice that when the LFOs and ENVs are set to send out their values as CCs, their potentiometers/buttons normally corresponding CCs are unavailable.
- When the MIDI local off is turned on, Medusa unit may look like it’s unresponsive, disable this function to gain back the control over the synth.
- In case of any problematic Medusa behaviour, reset the config settings. To do so, enter the config, go to the firmware section, press and hold the Clear button together with the Config button and confirm the config reset with the encoder.
- While the digital oscillators are always in perfect tune, one of the analogue oscillators attractions is the tuning imperfections (which can be noticed especially easy when there’s 3 digital and 3 analog oscillators next to each other). Sometimes the Dreadbox analogue circuitry needs a good warmup, especially after spending long days in warehouses or in transport. Please leave the unit turned on for 24h see if there’s any difference.

Warranty & safety

Polyend warrants this product, to the original owner, to be free of defects in materials or construction for one year from the date of purchase. Proof of purchase is necessary when a warranty claim is processed. Malfunctions resulting from improper power supply voltages, abuse of the product, or any other causes determined by Polyend to be the fault of the user won't get covered by this warranty (standard services rates will be applied). All defective products will be replaced or repaired at the discretion of Polyend. Products must be returned directly to Polyend with the customer paying the shipping cost. Polyend implies and accepts no responsibility for harm to a person or apparatus through the operation of this product.

Please go to polyend.com/help in order to start a return to manufacturer authorization, or for any other related inquiries.

Important Safety and Maintenance instructions:

- Do not open up the instrument chassis. It is not user repairable. Leave all servicing to qualified service technicians. Servicing may be required when the unit has been damaged in any way – liquid has been spilled or objects have fallen into the unit, has been dropped, or does not operate normally.
- Avoid exposing the unit to water, rain, moisture. Avoid placing it in direct sunlight or high-temperature sources for a long time.
- Do not use aggressive cleaners on the casing or on the screens. Get rid of dust, dirt, and fingerprints using a soft, dry cloth. Disconnect all cables while cleaning. Only reconnect them when the product is totally dry.
- To avoid scratches or damage, never use sharp objects on the body or screen of the Medusa. Do not apply any pressure to display.
- This apparatus, by itself or used with amplifiers, headphones, and speakers are able to produce high sound levels. Do not operate at levels that are uncomfortable. Protect your ears.
- Unplug your instrument from the power sources during lightning storms or when it is not used for long periods of time.
- Make sure that the power cord and other cables in the ports are safe from harm.
- A sound peak occurs on the stereo output of the Polyend Medusa when it's being toggled on/off. You may like to turn down the volume on all speakers and headphones before.

Firmware update

Medusa Hybrid Synthesizer firmware update instructions.

– Download the Polyend Tool and the firmware update file.
– Use no USB hubs or adapters. Use only a straight connection between the instrument and the computer.

1. Connect the Medusa with your computer using a USB cable,
2. Power up the synth,
3. Run the Polyend Tool app (right-click > open),
4. Click the “Find Device” button in the Polyend Tool application,
5. Click “Update”,
6. Press the reset/flash Button on Medusa’s back panel (shown on the picture attached in the archive),
7. Point the downloaded firmware hex file (Medusa.hex),
8. The instrument will restart after the flashing,
9. You can check the installed firmware version in the Config > Firmware.

Optionally you can use the Polyend Tool to load the preset banks and wavetable files.

If after the update (or during a fast off/on power toggling) your Medusa unit would start humming, glitching, freezing, or behaving strangely just toggle it off for 10 seconds and back on (analog circuitry needs a moment sometimes).

Appendix

List of Modulation Destinations

Destination – What will be modulated

None – Nothing
Pitch – Frequency of pitch of all 6 oscillators
AMP – Overall amplitude of all 6 oscillators
Cutoff – Cutoff frequency of the filter
Resonance – Resonance of the filter
FM Osc 1,2 – Frequency modulation amount for OSC 1 and 2
FM Filter – Frequency modulation amount for the filter
Pulse Width – Pulse width of the 3 analog oscillators
Wavetable all – Position in the wavetable for all digital oscillators
Wavetable D1 – Position in the wavetable for all D OSC1
Wavetable D2 – Position in the wavetable for all D OSC2
Wavetable D3 – Position in the wavetable for all D OSC3
A OSC1 Freq – Frequency or pitch of A OSC1
A OSC2 Freq – Frequency or pitch of A OSC2
A OSC3 Freq – Frequency or pitch of A OSC3
D OSC1 Freq – Frequency or pitch of D OSC1
D OSC2 Freq – Frequency or pitch of D OSC2

D OSC3 Freq – Frequency or pitch of D OSC3
Noise Color – Mix of high pass and low pass filtering of the noise source
A OSC1 Mix – Amount of A OSC1 signal in the overall mix
A OSC2 Mix – Amount of A OSC2 signal in the overall mix
A OSC3 Nlix – Amount of A OSC3 signal in the overall mix
D OSC1 Mix – Amount of D OSC1 signal in the overall mix
D OSC2 Mix – Amount of D OSC2 signal in the overall mix
D OSC3 Mix – Amount of D OSC3 signal in the overall mix
Noise Mix – Amount of noise source signal in the overall mix
LFO1 Rate – Rate (cycles per second) of LFO1 wave
LFO2 Rate – Rate (cycles per second) of LFO2 wave
LFO3 Rate – Rate (cycles per second) of LFO3 wave
LFO4 Rate – Rate (cycles per second) of LFO4 wave
LFO5 Rate – Rate (cycles per second) of LFOS wave
LFO1 Wave – Shape of the LFO1 wave
LFO2 Wave – Shape of the LFO2 wave
LFO3 Wave – Shape of the LFO3 wave
LFO4 Wave – Shape of the LFO4 wave
LFO5 Wave – Shape of the LFO5 wave

Notice that in order to send out the LFOs and ENVs CC values a target (any) needs to be chosen, they won't send out anything on the None setting.

Musical scales

Full Name – Abbreviation

0. NA – No scale
1. Chromatic – Chromatic
2. Minor – Minor
3. Major – Major
4. Dorian – Dorian
5. Lydian – Lyd Maj
6. Lydian Minor – Lyd Min
7. Locrian – Locrian
8. Phrygian – Phrygian
9. Phrygian Dominant – PhrygDom
10. Mixolydian – Mixolydian
11. Melodic Minor – Melo Min
12. Harmonic Minor – Harm Min
13. BeBop Major – BeBopMaj
14. BeBop Dorian – BeBopDor
15. BeBop Mixlydian – BeBopMix
16. Blues Minor – Blues Min
17. Blues Major – Blues Maj
18. Pentatonic Minor – Penta Min
19. Pentatonic Major – Penta Maj
20. Hungarian Minor Hung Min
21. Ukrainian – Ukrainian
22. Marva – Marva

23. Todi – Todi
24. Whole Tone – Wholetone
25. Diminished – Dim
26. Super Locrian – SLocrian
27. Hirajoshi – Hirajoshi
28. In Sen – In Sen
29. Yo – Yo
30. Iwato – Iwato
31. Whole Half – WholeHalf
32. Kumoi – Kumoi
33. Overtone – Overtone
34. Double Harmonic – DoubHarm
35. Indian – Indian
36. Gypsy – Gypsy
37. Neapolitan – NeapoMaj
38. Neapolitan Minor – NeapoMin
39. Enigmatic – Enigmatic

CC Chart

TARGET Y VALUE	1
PLAY MODE GLIDE	5*
OSC1 TUNING	7
OSC1 U TUNING	8
OSC1 WAVE	9
OSC1 OCTAVE	10
OSC2 TUNING	11
OSC2 U TUNING	12
OSC2 WAVE	13
OSC2 OCTAVE	14
OSC3 TUNING	15
OSC3 U TUNING	16
OSC3 WAVE	17
OSC3 OCTAVE	18
OSC4 TUNING	19
OSC4 U TUNING	20
OSC4 WAVE	21
OSC4 OCTAVE	22
OSC5 TUNING	23
OSC5 U TUNING	24
OSC5 WAVE	25
OSC5 OCTAVE	26
OSC6 TUNING	27
OSC6 U TUNING	28

OSC6 WAVE	29
OSC6 OCTAVE	30
OSC3 OSC1,2	31
OSC3 FILTER	119
OSC PW	33
OSC NOISE	34
OSC WAVETABLE	35
OSC SYNC2	36
OSC SYNC3	37
PLAY MODE	38
PLAY MODE GLIDE	5*
FILTER CUTOFF	40
FILTER RESONANCE	41
FILTER TYPE	42
FILTER TRACK	43
MIXER OSC1 ANALOG	44
MIXER OSC2 ANALOG	45
MIXER OSC3 ANALOG	46
MIXER NOISE	47
MIXER OSC1 DIGITAL	48
MIXER OSC2 DIGITAL	49
MIXER OSC3 DIGITAL	50
ENV1 DELAY	51
ENV1 A	52
ENV1 D	53
ENV1 S	54
ENV1 R	55
ENV1 AMOUNT	56
ENV1 TARGET	57
ENV1 LOOP	58
ENV2 DELAY	59
ENV2 A	60
ENV2 D	61
ENV2 S	62
ENV2 R	63
ENV2 AMOUNT	39*
ENV2 TARGET	65
ENV2 LOOP	66
ENV3 DELAY	67
ENV3 A	68
ENV3 D	69
ENV3 S	70
ENV3 R	71
ENV3 AMOUNT	72

ENV3 TARGET	73
ENV3 LOOP	74
ENV4 DELAY	75
ENV4 A	76
ENV4 D	77
ENV4 S	78
ENV4 R	79
ENV4 AMOUNT	80
ENV4 LOOP	82
ENV5 DELAY	83
ENV5 A	84
ENV5 D	85
ENV5 S	86
ENV5 R	87
ENV5 AMOUNT	88
ENV5 LOOP	90
LFO1 RATE	91
LFO1 WAVE	92
LFO1 AMOUNT	93
LFO1 TARGET	94
LFO1 SYNC	95
LFO2 RATE	96
LFO2 WAVE	97
LFO2 AMOUNT	98
LFO2 TARGET	99
LFO2 SYNC	100
LFO3 RATE	101
LFO3 WAVE	102
LFO3 AMOUNT	103
LFO3 TARGET	104
LFO3 SYNC	105
LFO4 RATE	106
LFO4 WAVE	107
LFO4 AMOUNT	108
LFO4 TARGET	109
LFO4 SYNC	110
LFO5 RATE	111
LFO5 WAVE	112
LFO5 AMOUNT	113
LFO5 TARGET	114
LFO5 SYNC	115
TARGET X SELECT	116
TARGET Y SELECT	117
TARGET Z SELECT	118

SUSTAIN (HOLD)	64*

* Those values changed in firmware 4.0.

Note: when LFOs and ENVs are configured to send their values out as CCs, their regular potentiometer/button CCs are unavailable.

Download

Medusa Hybrid Synthesizer 4.0.1 manual addendum in PDF form.

Medusa Hybrid Synthesizer 3.0.1 manual in PDF form.

Medusa Hybrid Synthesizer quick start in PDF form.

Medusa Hybrid Synth video tutorials

https://www.youtube.com/embed/nMt3hy1SVW4?feature=oembed
https://www.youtube.com/embed/zt7wB9ZlPsE?feature=oembed
https://www.youtube.com/embed/XAgZ0ybSNgk?feature=oembed
https://www.youtube.com/embed/rAVaPPV3q3E?feature=oembed
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https://www.youtube.com/embed/FJPQ8k6Cs0k?feature=oembed