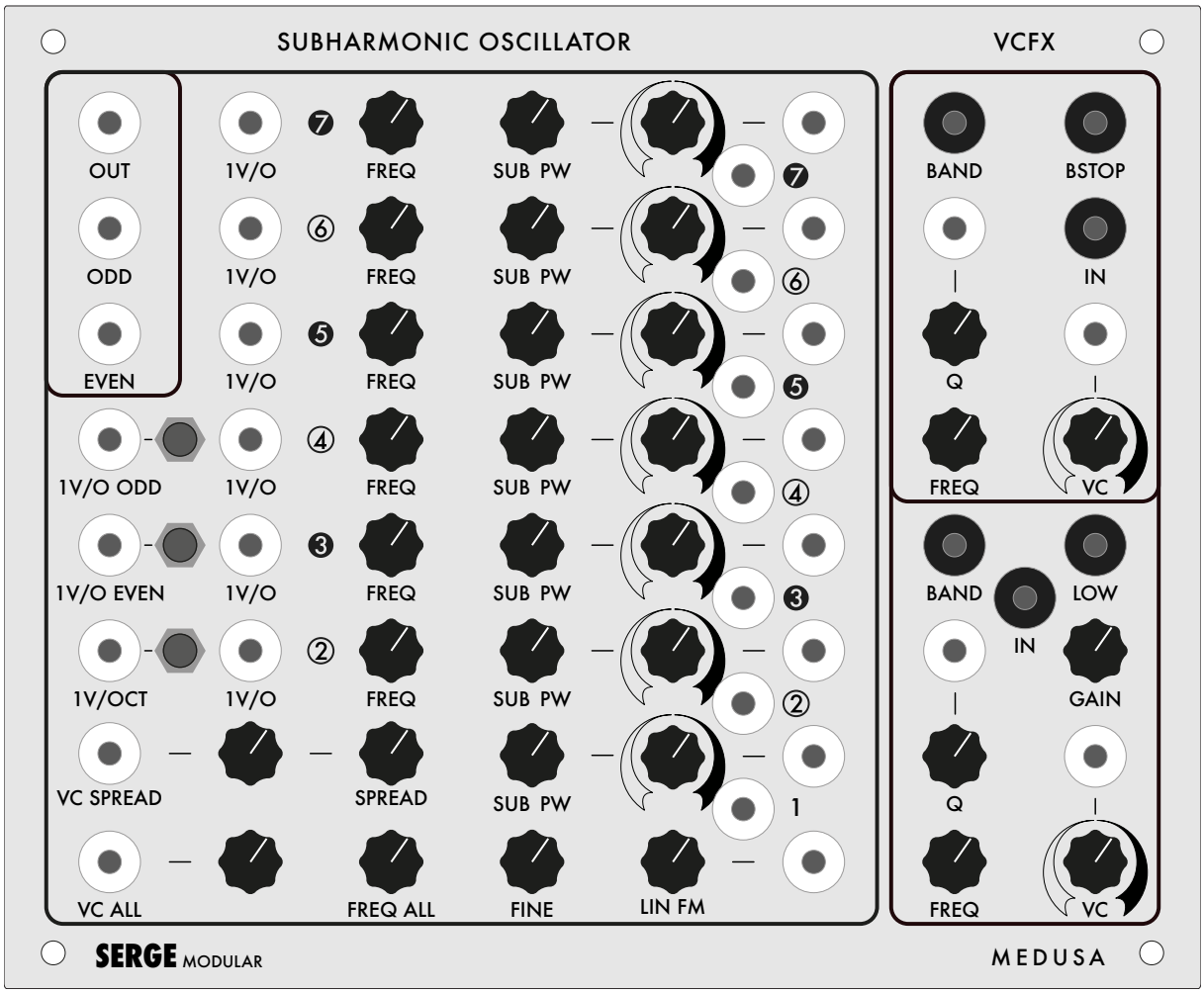
SERGE

MEDUSA



USER MANUAL

V1.0

RANDOM*SOURCE

MEDUSA

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Installation

Serge Medusa is an electronic music module requiring appr. **150mA of +12V**DC and **110 mA of -12V**DC regulated voltages and an appropriate power connector to operate.

POWER YOUR SYSTEM OFF before installing the module. Please use the power cable provided to connect the small end of the power cable to the module. Pay attention to the orientation of the MTA connector - do not use force. Carefully install and secure the module in your boat. Your module should be ready to go now :-)

Please beware: Powering the module on anything more (or less) than +/-12V is not recommended and may damage the module. Feeding any of the inputs (or outputs) with voltages outside a +/-12V range may damage the module. This type of damage is not covered under warranty.

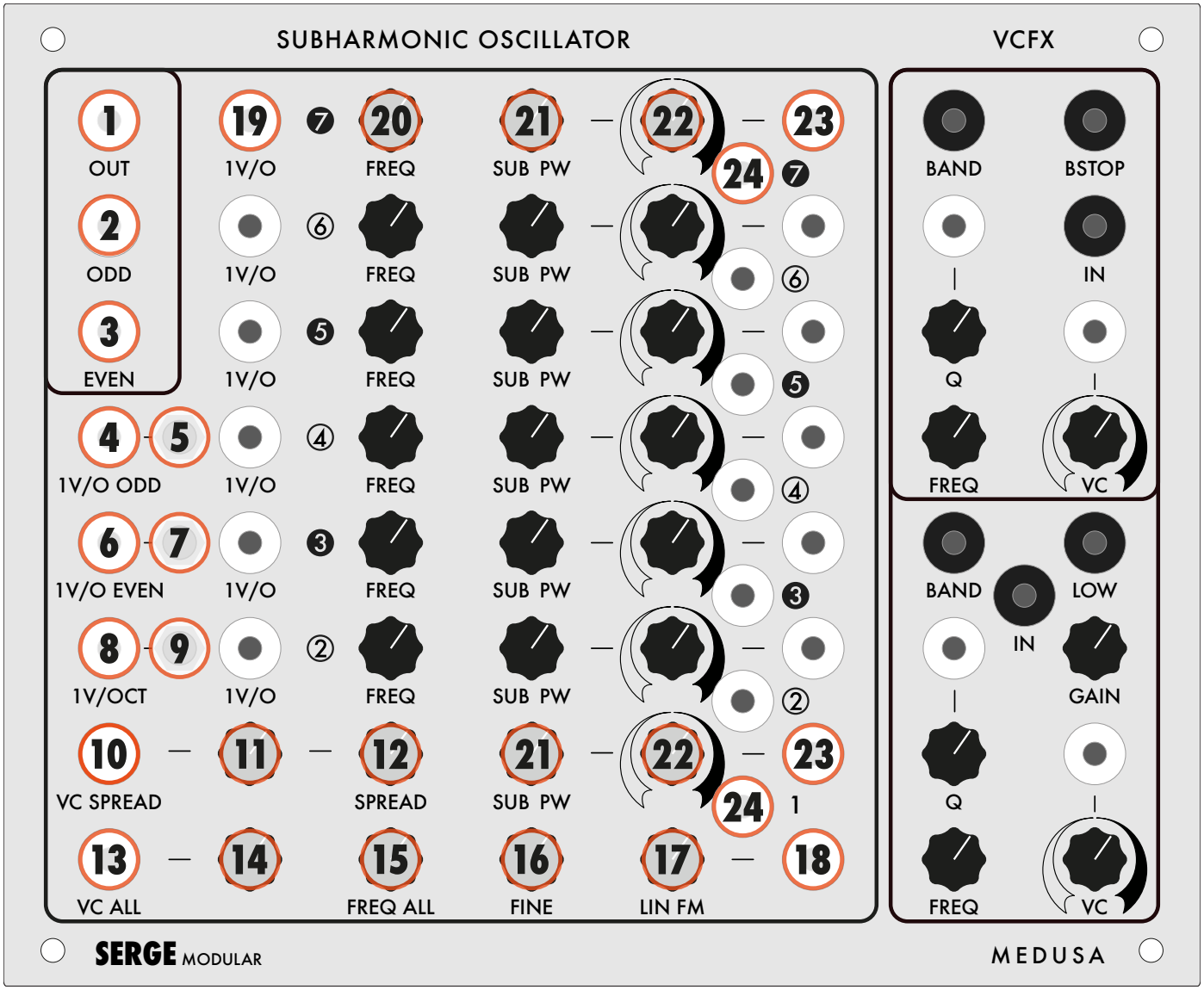
Overview

Medusa is a combation of two of the latest (2023) inventions of Serge Tcherepnin - the Subharmonic Oscillator and two new voltage controlled filters (VCFX) in slightly different versions.

The Subharmonic Oscillator combines 7 voices (pulse waves), each voice providing pulse width modulation or subharmonic division as well as 1V/Octave inputs and an individual output. The precision of these voices in combination with a global Spread control and various FM inputs opens up an enormous sonic range from massive unisono sounds to dissonant, orchestra-style textures. The module has been designed for excellent tracking and temperature stability.

The VCFX is a completely new Serge filter design with a Bandpass as primary output. The top filter provides an additional Band Stop output, softly rejecting the frequency band whereas the bottom filter has a more Lowpass output. In combination with the Subharmonic oscillator, these filters allow to shape percussive sounds, create slowly evolving textures and much more.

Medusa - The Subharmonic Oscillator



OUT (**1**) — Main Output, the sum of all seven oscillators. DC coupled, level depends on the phase cancellations / addition of the individual pulse waves, usually in a 0V to 7V range, this is a very rough indication, however.

ODD OUT (**2**) — Sum of Oscillators 3, 5 and 7. Can be used as a pseudo-stereo output (L)

EVEN OUT (**3**) — Sum of Oscillators 2, 4 and 6. Can be used as the other side of pseudo-stereo output (R)

1V/O ODD (**4**) — 1V/Octave input (banana jack) to control (only) the odd oscillators. Please note that all the 1V/Oct inputs work together, e.g. if you use the main 1V/Oct input (8) to set a base pitch / sequence and then send -1V into 1V/O ODD (**4**) the odd oscillators jump down one octave, still following the main sequence.

1V/O ODD (**5**) 1V/Octave input (3.5mm eurorack jack) to control the odd oscillators. Can be used to connect a standard keyboard or sequencer via a eurorack cable. Use either the banana input (**4**) or the eurorack jack (**5**) at the same time.

1V/O EVEN (**6**) 1V/Octave input (banana jack) to control the even oscillators.

1V/O EVEN (**7**) 1V/Octave input (3.5mm eurorack jack) to control the even oscillators. Can be used to connect a standard keyboard or sequencer via a eurorack cable. Use either the banana input (**6**) or the eurorack jack (**7**) at the same time.

1V/O (**8**) Main 1V/Octave input (banana jack) that controls all seven oscillators.

1V/O (**9**) Main 1V/Octave input (3.5mm eurorack jack), same as (**8**) in eurorack format. Use either the banana input (**8**) or the eurorack jack (**9**) at the same time, otherwise they are passively mixed.

Spread

Medusa is carefully calibrated so that all seven oscillators can play the same pitch / frequency. Of course, Medusa is a fully analog design, so do not expect the voices to act 100% in unison without any Schwebung. To get a unisono sound (with exceptional tracking), make sure Spread (**12**) is turned all the way down and the FREQ knobs of oscillators (2) to (7) are all turned to minimum (CCW). Now voices 2 to 7 should follow the main oscillator (1) and are controlled by FREQ ALL (15), FINE (16) as well as 1V/O (**8** and **9**).

Spread now allows to space out the seven voices in a controlled manner, from a “swarm” or tuning orchestra effect to more drastic dissonance, creating a very massive, overtone-rich soundscape. Spread can be controlled manually or by CV. Interesting effects can be achieved when the spreaded sound is filtered and/or FM is applied.

SPREAD CV (**10**) CV input to control the spacing between the oscillators (“Spread”). Spread allows to go from unison to “Schwebung” to dissonant soundscapes (and back).

SPREAD A (**11**) Spread CV attenuator, controls the level of Spread CV (**10**) actually used.

SPREAD (**12**) Manual control over Spread.

Frequency and Modulation

CV IN (**13**) Exponential CV input affecting all seven voices, ideal for **exponential** frequency modulation (**FM**) and (in combination with Spread) metallic sounds.

CV A (**14**) CV Attenuator, controls the level of (exponential) CV being sent to the seven oscillators.

FREQ ALL (**15**) Controls the (base) pitch of all 7 oscillators. Can be used for exponantial FM.

FINE (**16**) Like FREQ ALL (**15**), but with a very narrow range to allow cent-accurate tuning.

LIN FM (**17**) CV Attenuator, controls the level of (linear) CV (**18**) being sent to the seven oscillators.

LIN FM IN (**18**) CV Input for linear frequency modulation (FM).

Individual Oscillator Control

1V/O (**19**) 1V/Octave input for a specific voice / oscillator. Only for voices 2 to 7. Can be used for (not so drastic) FM, too.

FREQ (**20**) Manual pitch control for a specific voice / oscillator. Shifts the pitch up from the (global) Base Frequency. Turn to minimum to have the voice play unison with the Base Oscillator (#1).

SUB PW (**21**) Manual Subharmonics to Pulsewidth control. Each oscillaor generates a Pulse width. At center position (or slightly to the right) each oscillator generates a Pulse wave with a fairly high duty cycle. Turning the SUB PW knob to the right decreases the pulse width (without changing the frequency). **Left of the center, however, the SUB PW knob causes a subharmonic pulse division, making the oscillator jump to lower frequencies that are still based on the original (center) frequency**. Beware that these may be go to very low frequencies, which might give the wrong impression of the oscillator not running. **Turn this knob to about 1'o clock or higher before trying to get a unisono sound**.

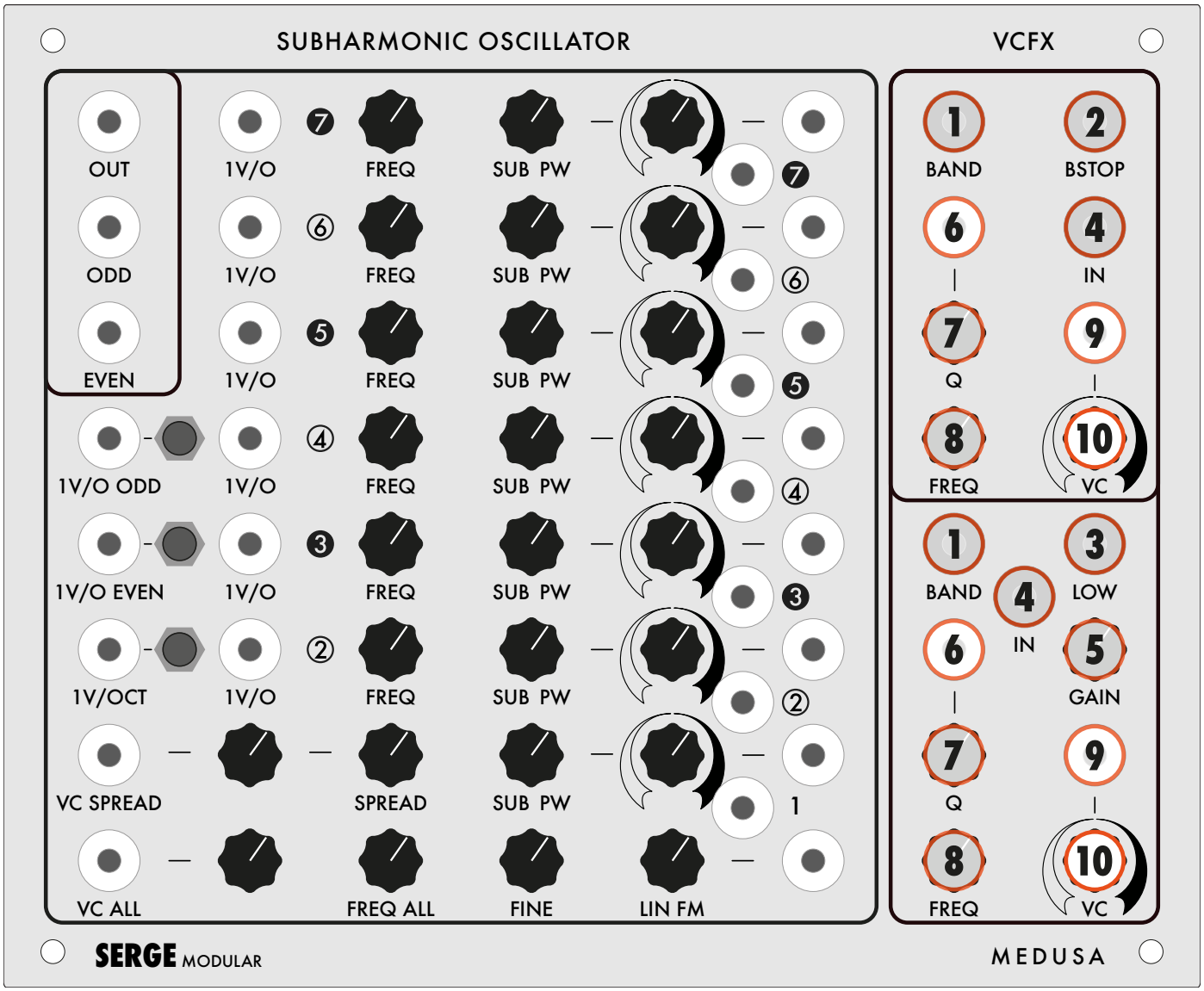
SUB PW AV (**22**) Attenuverter (Processor) for the SUB PW control voltage (**23**), allows to dose CV in both directions for Pulse Width Modulation (PWM) or subharmonic changes or both.

SUB PW CV (**23**) CV Input to control the SUB PW setting for each oscillator.

OSC OUT (**24**) Single oscillaotor output. Useful to check the current settings (pitch, SUB PW effect etc.).

Medusa - The 2023 Serge Filter (VCFX)

Medusa contains a newly designed Serge filter in a Dual VCF version where both sides offer slightly different configurations. Since both sides have a Bandpass output, the VCFX can be used for Stereo processing of the EVEN and ODD Outs of the Subharmonic Oscillator. Of course they can also be used in series and in many other ways.



BAND OUT (**1**) — Main Bandpass Output of each filter. Allows frequencies within a specific range around the (center) Frequency to pass through while attenuating frequencies outside this range.

BSTOP OUT (**2**) — Bandstop Output (top VCF only). Has the adverse effect from the Bandpass output - it attenuates frequencies around the (center) Frequency while letting everything else pass through. Usually a more subtle effect, great to add texture / movement to a sound.

LOW OUT (**3**) — Lowpass Output (bottom VCF only).

INPUT (**4**) — AC coupled signal input.

GAIN (**5**) — Attenuator to control the input level (bottom VCF only). Helpful to control Resonance levels.

CV Q (**6**)	DC coupled voltage control input for Resonance.
Q (**7**)	Manual Resonance (Q) control.
FREQ (**8**)	Manual control over Frequency.
CV (**9**)	CV Input for Frequency.
CV AV (**10**)	Attenuverter control for frequency: provides for scaling, attenuation, amplification and inversion of the CV signal(s) sent into VC FREQ Input (**9**).

(Version 10. June 2024, 12:41 PM)