



Sewastopol

AUDIO PORT &
VOLTAGE EXTRACTOR
MODEL OF 1946

SALUT

Thank you for purchasing this Xaoc Devices product. The Sewastopol allows you to interface your modular system with the outside world in many ways.

Actually, there are 3 submodules in one compact package. The lower section can be used as input and output audio interface and external effects adaptor, while the upper section is an innovative voltage extractor consisting of

a versatile envelope follower and comparator. Either section may be used independently. The module is only 8hp, and a perfect solution for portable modular set-ups, but can obviously empower any system to a great extent.

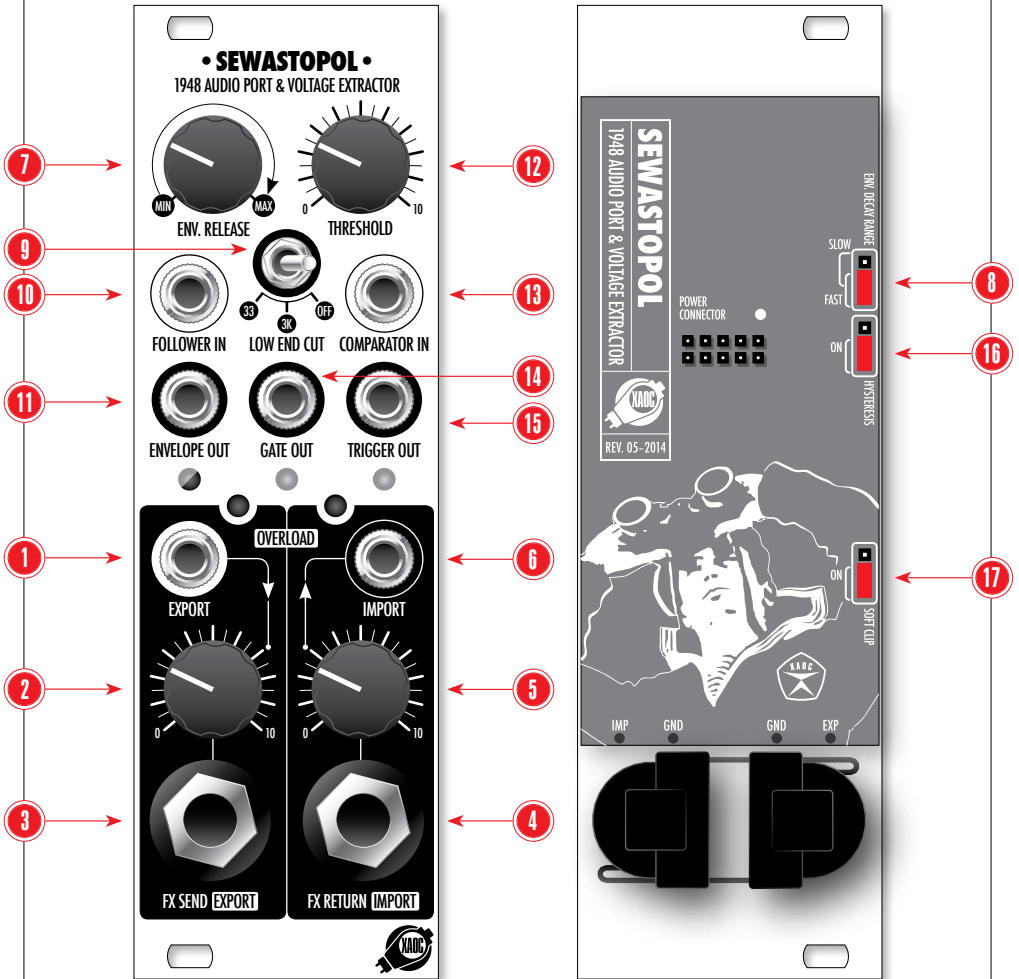
THE MODULE EXPLAINED

PANEL CONTROLS

(see text)

JUMPERS

(see text)



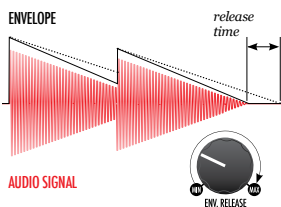
GETTING STARTED

Ensure that you have 8hp free space in your eurorack cabinet and turn the power off. Now, plug in the provided ribbon

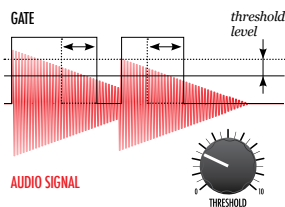
cable to the bus board, paying close attention to its pinout and orientation. The red stripe (and a white dot) indicates the negative 12V rail, and is supposed to point exactly the same on the

busboard as well as the unit. The module has been secured against reversed power connection but it is always a good habit to pay attention to this. Mount the screws and switch your system back on.

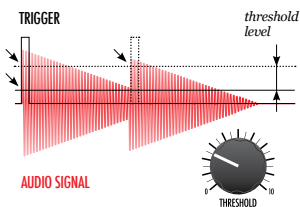
ENVELOPE



GATE



TRIGGER



EXTERNAL FX ADAPTOR

Arrange an external chain of desired processors (rack, pedals, etc.) to be included in your patch. Route the “dry” signal outside using the **EXPORT** socket ①, carefully attenuating it ② and send it out to the external devices via **FX SEND** socket ③. Remember that modular signals are way too hot for typical studio gear so you can easily cause a damage, so attenuation is important! The “wet” signal returns via **FX RETURN** socket ④ and needs to be amplified ⑤ to reach the usual modular level. Now, you can use the effected signal available from the **IMPORT** socket ⑥. There are **OVERLOAD** indicator LEDs to help you with adjustments. If distortion is your thing, there’s a soft clipping available (jumper ⑦ selected).

AUDIO INTERFACE

Same way as above, Sewastopol provides comfortable way of importing the external signal from a standalone synth, drum machine, any other instrument or microphone into your modular system – and process it (as described below). Simultaneously you can use the module as a general output to an outboard mixer, amp, computer interface etc. **CAUTION:** the **IMPORT** path offers a huge range of gain in order to allow amplifying very weak signals. Thus, at high gain settings, the input stage may be

extremely sensitive to all kinds of noises from other devices. This was a deliberate design choice to offer more functionality at the price of audio purity.

ENVELOPE FOLLOWER

Sewastopol features an unique envelope follower circuit which accurately detects all positive and negative peaks of the input audio signal, and offers both rapid response to transients and smoothed response to amplitude fluctuations.

As opposed to common followers based on rectification and simple smoothing (which result in unwanted ripples in the output voltage), the module implements a novel bipolar peak detector whose output is held until a subsequent waveform peak arrives. This results in a stable, ripple-free output voltage for a constant amplitude input signal. On the other hand, the response for a rapid increase of amplitude (often associated with transients) is near instantaneous. Additional smoothing is possible which may be effective for complex signals with varying amplitude (e.g. chords from a guitar).

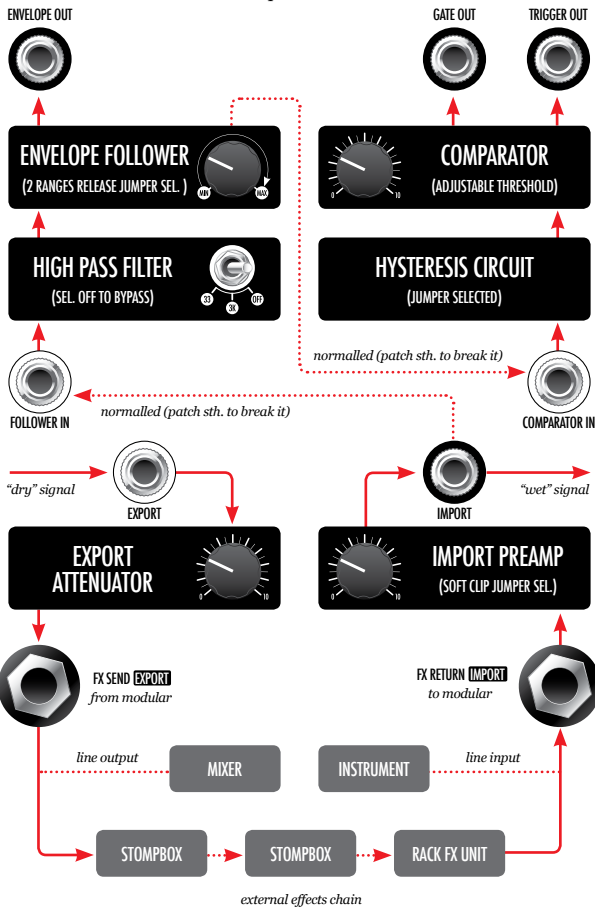
The **IMPORT** socket ⑥ is normally to the envelope follower section for the imported signal but you can use that section independently by patching the signal to be analyzed into the **FOLLOWER IN** socket ⑩. An envelope voltage

is extracted to follow the signal amplitude and is available from the **ENVELOPE OUT** socket ⑪. The **LED** below indicates the envelope voltage range. You can set the envelope snappiness with the **ENVELOPE RELEASE** knob ⑦. The intelligent smoothing circuit allows adjusting the release time in two wide ranges (jumper ⑧ selected) without affecting transient response. On top of that, there is a switchable input highpass filter ⑨ aimed at attenuating very low frequencies (below 33 Hz or 3 kHz). It makes the follower less sensitive to bass which usually dominates much softer percussive sounds, and improves the overall response to mixed music.

VOLTAGE COMPARATOR

The comparator input is normally to the envelope follower, but you can use it directly by patching the signal into the **COMPARATOR IN** ⑫ socket. The trigger and gate signals are generated by comparing the output of the envelope follower with an adjustable **THRESHOLD** ⑬ level, and are available consecutively from **GATE OUT** ⑭ and **TRIGGER OUT** ⑮ sockets. In order to prevent multiple triggering in case of small amplitude fluctuations, an optional hysteresis is offered (jumper ⑯ selected). With hysteresis on, different thresholds are applied for increasing and decreasing voltage, so that any changes within a small range are ignored.

SIGNAL FLOW CHART (upwards)



MODULE FEATURES

- external effects adaptor
- audio input & output interface
- versatile envelope follower with 2 wide ranges of operation and low cut filter
- voltage comparator with hysteresis circuit
- soft clipping option
- internal normalizations
- reversed power protection

TECHNICAL DETAILS

- eurorack standard compliant
- 8 hp wide
- 25 mm deep (skiff friendly)
- +12/-12V powered
- current draw: 40 mA



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BY THE PEOPLE'S
COUNCIL FOR MUTUAL
ECONOMIC AID

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