XAOC Batumi Eurorack Module on ModularGrid User Manual

Contents

XAOC Batumi Eurorack Module on ModularGrid

module explained

SALUT

Thank you for purchasing this Xaoc Devices product. Batumi [ˌba'tumi] is a fully volt-age-controlled quadruple digital low-frequency oscillator module with lots of interesting user-customizable features. Each LFO channel can be used independently or in one of three synchronized modes (fig. 3). The total frequency range spans from 28 hours (in voltage-controlled divide mode) up to 500Hz.

INSTALLATION

The module requires 10hp worth of free space in the eurorack cabinet. The ribbon-type power cable must be plugged into the bus board, paying close attention to polarity orientation. The red stripe indicates the negative 12V rail and should align with the dot, –12V, or red stripe marks on both the unit and the bus board. The module itself is secured against reversed power connection, however, reversing the 16-pin header may cause serious damage to other components of your system by short-circuiting the +12V and +5V power rails. The module should be fastened by mounting the supplied screws before powering up. To better understand the device, we strongly advise the user to read through the entire manual before using the module.

MODULE OVERVIEW

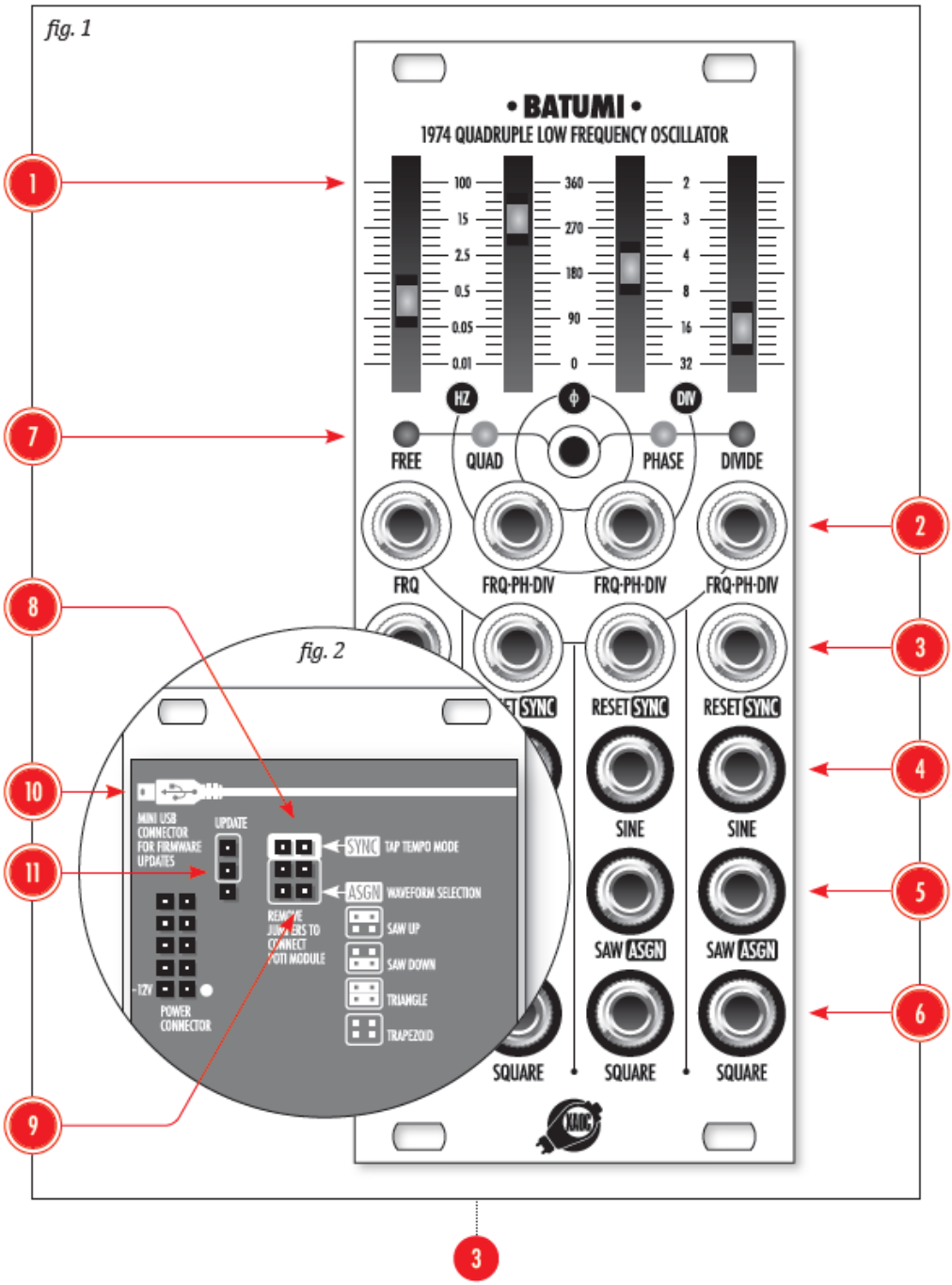
Batumi features four identical LFO chan-nels (fig. 1). Each channel’s slider pot 1 controls one of the four main parameters as determined by the global mode setting. In free mode, each slider determines its own channel’s

frequency (from 0.01Hz to 100Hz). In the other three modes, slider 1 acts as a master to the remaining channels' frequent allowing the remaining sliders to perform other actions. For example, in phase mode, sliders 2–4 define the phase shift, in quad mode, sliders 2–4 define the amplitude, and in divide mode, sliders 2–4 define the division of the master frequency. Frequency can also be set with increased precision by entering zoom mode, described later in this manual.
The frq/ph/div input 2 allows the cor-responding slider parameter to be voltage controlled (1V/oct). Doing so allows for an extended frequency range from 500Hz all the way down to 53 minutes! The expected voltage is –5V to +5V. Above 100Hz, the waveforms tend to lose some precision and amplitude.
The reset/sync input 3 is a user-defined trigger input that can serve as either cycle reset or external tempo sync depending on the jumper settings described later in this manual. The sine output 4 produces a sine waveform (–5V to +5V). In quad and phase modes, the sines are shifted in relation to one another. The saw/asgn output 5 produces either a default upwards saw (ramp) wave-form (–5V to +5V) or one of the user-selectable shapes described later in this manual. The square output 6 produces a square waveform (–5V to +5V).
The LFO sync mode toggle section 7 allows the four oscillators to run free or sync to the master, as follows:

FREE LFO MODE

To enter this mode, click the central button until the red, free LED lights up. Now, all four LFO channels work independently.

front panel overview



QUADRATURE LFO MODE

Click the central button until the yellow, quad LED lights up. The first LFO is a master controlling the frequency of all the remain-ing LFOs. Each subsequent LFO generates a wave that is 90° shifted in relation to the preceding one (90°, 180°, 270°). In this mode, sliders 2–4 and the CV inputs control the re-spective channel's amplitude. The reset/sync 2–4 inputs allow for additional control described later in this manual.

PHASE LFO MODE

Click the central button until the yellow, phase LED lights up. phase mode is similar to quad mode, except that the amount of phase shift can be set arbitrarily. Sliders 2–4 and frq inputs are active. The reset/sync 2–4 inputs allow for additional control de-scribed later in this manual. A tip: in phase mode, patch one of the LFOs to control the phase shift of another. Stacking LFOs results in new, complex waveforms.

DIVIDE LFO MODE

Click the central button until the blue, di-vide LED lights up. LFOs 2–4 are synced to LFO 1 with their frequencies occurring at divisions of the master. Sliders 2–4 de-fine the division ratio. Resulting cycle rates can be 2, 3, 4, 8, 16 or 32 times slower than the primary, master LFO's cycle. The re-set/sync 2–4 inputs allow for addition-al control described later in this manual.

RESET & SYNC INPUT

The reset/sync input can serve two differ-ent purposes. In reset mode an incoming trigger impulse resets the LFO

cycle to zero state (hard sync). In sync mode (default set-ting) the LFO frequency can be slaved to an external clock source or tapped via manual gate so that waveform phase is aligned to the external clock.
These modes are selectable by the jumper 8 on the back of the module (fig. 2: no jumper for reset, jumper present for sync) or via the Poti module.

SYNCED MODES ADDITIONAL CONTROLS

In quad, phase and divide modes, the sec-ond reset input holds (pauses) all the LFOs, the third reset input reverses the direction of the waveform, and the fourth reset input selects the next waveform (see “Assignable Waveforms”). Switching modes resets the waveform to the default set by the jumper.

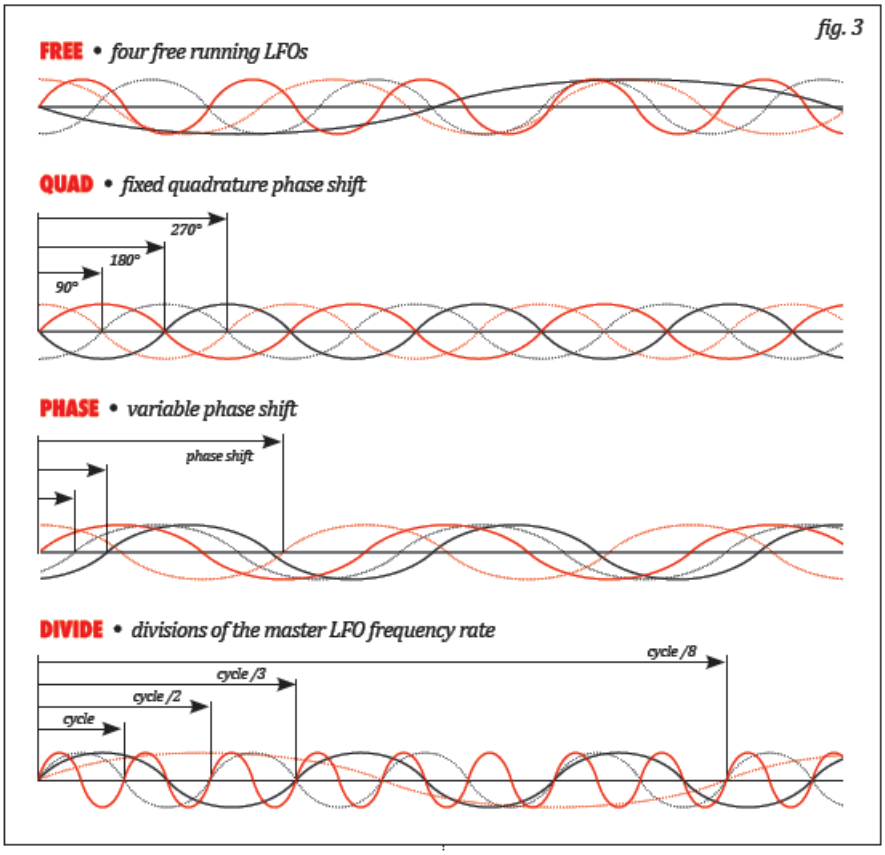
ZOOM MODE

To enter zoom mode, hold the central but-ton for a second until the current mode LED starts to blink. This mode upscales the slid-er travel around the central value to allow for precise adjustment. To exit zoom mode, press the central button again. Upon exiting zoom mode, any flashing LED indicates that the parameter value and slider position do not match. In divide mode, the fine setting adds or subtracts 0–3 to the division set out-side of zoom mode.

ASSIGNABLE WAVEFORMS

The saw/asgn output may be configured to provide one of the alternate waveforms. The default firmware provides four waveforms: ramp, saw, triangle and trapezoid. To assign the desired waveform, use the jumpers clus-ter 9 on the back.

quadruple LFO modes



EXPANDABILITY

The functionality of Batumi can be greatly en-hanced by adding two Xaoc modules: Poti and Samara. Poti is a simple breakout module pro-viding an immediate panel access to the Ba-tumi functions originally selected by jumpers. Samara II is an independent multi-function module offering four channels of attenuation, inversion, offsetting, mixing, minimum-maxi-mum selection and basic waveshaping.

FIRMWARE UPDATES

The MiniUSB standard port 10 allows an update procedure. Instructions are bundled with the firmware packages available online. Mind the position of the update jumper 11 .

ACCESSORY

Our Coal Mine black panels are available for all of Xaoc Devices modules. Sold separately. Ask your favourite

retailer.

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XAOC DEVICES WARRANTS THIS PRODUCT TO BE FREE OF DEFECTS IN MATERIALS OR WORKMANSHIP AND TO CONFORM WITH THE SPECIFICATIONS AT THE TIME OF SHIPMENT FOR ONE YEAR FROM THE DATE OF PURCHASE. DURING THAT PERIOD, ANY MALFUNCTIONING OR DAMAGED UNITS WILL BE REPAIRED, SERVICED, AND CALIBRATED ON A RETURN-TO-FACTORY BASIS. THIS WARRANTY DOES NOT COVER ANY PROBLEMS RESULTING FROM DAMAGES DURING SHIPPING, INCORRECT INSTALLATION OR POWER SUPPLY, IMPROPER WORKING ENVIRONMENT, ABUSIVE TREATMENT, OR ANY OTHER OBVIOUS USER-INFLICTED FAULT.

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WORKING CLASS ELECTRONICS

EASTERN BLOC TECHNOLOGIES MADE IN THE EUROPEAN UNION

EDITING BY BRYAN NOLL.

MAIN FEATURES

- Four digital
- voltage controlled
- LFOs
- Free, Quadrature,
- Phase and Divide
- modes
- Wide range, from
- 28 hours to 500 Hz
- Assignable
- waveform outputs
- Zoom mode for
- precise frequency

- setting
- Mini USB
- connector for
- easy updates
- Alternate
- firmware option
- Expandable
- via Poti module
- **TECHNICAL DETAILS**
- Eurorack synth
- compatible
- 10hp, skiff friendly
- Current draw:
- +45mA / -15mA
- Reverse power
- protection

Documents / Resources

	XAOC Batumi Eurorack Module on ModularGrid [pdf] User Manual Batumi Eurorack Module on ModularGrid, Batumi, Eurorack Module on ModularGrid, Eurorack Module, Module, Eurorack

References

- Xaoc Modular Devices