TIRANA

UTILITY MICRO SEQUENCER II

Model of 1960

OPERATOR'S MANUAL *rev. 1960/2.0*

SALUT

Thank you for purchasing this Xaoc Devices product. Tirana is a compact, expandable voltage source with a wide range of uses including classic step sequencer, modulation source, voltage bank, and arpeggiator.

Tirana is equally suited to small and large systems alike, either as a single utility or chained with more Tirana units. This is a second, vastly improved revision to the original 2014 Tirana, featuring an updated circuit and a new, more powerful firmware.

INSTALLATION

The module requires 6hp 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 is supposed to match a 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, because it will short-circuit 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

To operate, Tirana expects an external clock source (up to 320Hz) in the **CLOCK** *input socket* ❸*. Patching any stable clock generator—such as an LFO pulse or another sequencer's sync output—causes the sequence steps to play sequentially in a loop. The value for each step is adjustable by turning knobs* **1-4** ❶*. By default, the voltage set by the knob is unipolar and within the 0V to 10V range. The jumper* ❾ *on the back of the module allows for the selection of bipolar voltages within –5 to +5V range. Another jumper* ❿ *attenuates the voltage range to 0V to 5V and –2.5V to +2.5V respectively (see fig. 2). Generated control voltages and gate/trigger impulses are available at* **CV OUT** ❹ *and* **GATE** ❺ *outputs.*

Gate/trigger can be muted for each step by pressing the corresponding button ❷ *until its light deactivates.* **NOTE:** *Muting a step does not remove the step from the sequence. The control voltage remains present for the selected step, and only the gate/trigger itself is muted.*

SEQUENCE PLAY CONTROL

Sequence direction can be changed by patching a trigger impulse into the **DIRECTN** *input socket* ❻*. Sequence can be reset to* **STEP 1** *by patching a trigger impulse into the* **RESET** *input* ❼*. Sequence can be transposed (offset) by patching a control voltage into the* **TRANSP** *input* ❽*.*

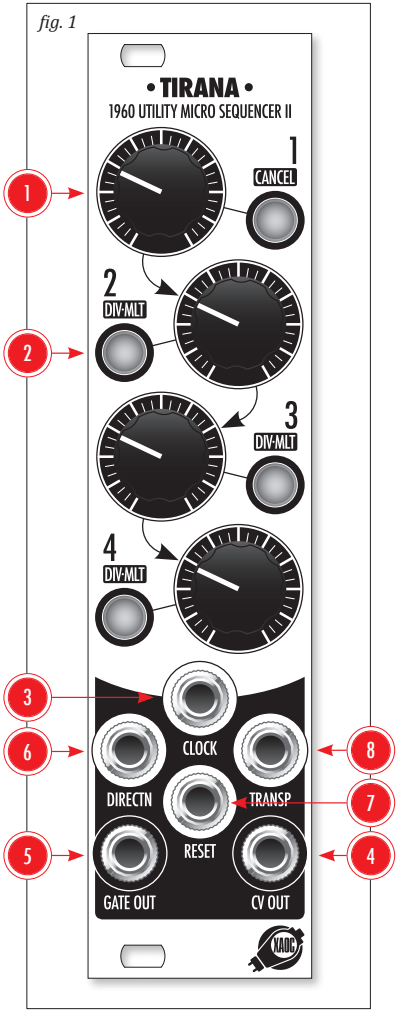
TOGGLING GATE VS. TRIGGER

Hold **STEP 1** *and* **STEP 4** *buttons simultaneously for 2 seconds to change whether the* **GATE** *output generates a gate or trigger impulse.* **NOTE:** *Dynamic gate width modulation is possible because Tirana's gate width directly matches that of the external clock impulse.*

STEP MULTIPLICATION AND DIVISION

Each step can be multiplied (repeated) up to four times (resulting in up to 16 steps in the sequence). The note length is retained upon repeat. Alternatively, each step can be divided to achieve the popular ratcheting effect. The trigger/gate impulse is generated 2, 3 or 4 times per note. To program these events on a given step, enter the step menu as follows:

fig. 1



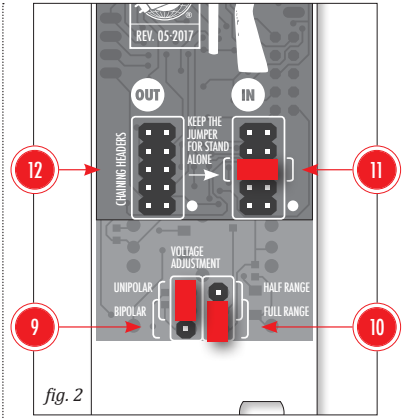


fig. 2

STEP REPEAT

To set a desired number of repeats for a given step, enter the **DIV·MLT** *menu by holding the corresponding step's button for 2 seconds. The number of repeats is indicated by one blinking button and three unlit buttons. Press* **STEP 2** *for one repeat (2 total triggers),* **STEP 3** *for two repeats (3 total triggers), or* **STEP 4** *for three repeats (4 total triggers) of the given step. To reset the desired step back to a single trigger, press* **CANCEL** *(***STEP 1** *button). Tirana automatically exits the* **DIV·MLT** *menu mode once a choice is made.*

RATCHETING

To set a desired number of ratchets for a given step, enter the **DIV·MLT** *menu by pressing the corresponding step's button for 2 seconds. The number of divisions is indicated by one blinking button and three unlit buttons. Hold* **STEP 2** *for two triggers (step divided by 2),* **STEP 3** *for three triggers (step divided by 3), or* **STEP 4** *for four triggers (step divided by 4) within the given step.*

To reset the desired step back to a single trigger, press **CANCEL** *(***STEP 1** *button). Tirana automatically exits the* **DIV·MLT** *menu mode once a choice is made.*

While in **DIV·MLT** *menu, a slowly-blinking button indicates multiplication and a quickly-blinking button indicates division (see fig. 4). All settings are memorized and recalled after power reset.*

CLOCK DIVISION

Tirana can be set to internally divide the incoming clock by 2, 3 or 4. Division value can be set by holding step buttons in the following combinations: Buttons **1+2** *for division by 2. Buttons* **1+2+3** *for division by 3. Buttons* **1+2+3+4** *for division by 4.* **NOTE:** *Choosing any of these combinations a second time sets the module back to the default (not divided) original clock rate. The succession is always: orig. clock —› division —› orig. clock —› division, etc. Division choice is confirmed by a quick glimpse of all the buttons (see fig. 4). All settings are memorized and recalled after power reset.*

CHAINING MULTIPLE UNITS

Multiple Tirana units may be chained (using the supplied 10-pin ribbon cable) to form a multistep sequencer. Every module ships with one 10-pin ribbon cable. To connect multiple units, attach the cables exactly as shown in fig. 3. The first unit in the chain is the master and therefore should have a jumper present on the **IN** *header. Remove the* **IN** *header* ⓫ *jumper from every slave unit and connect the* **OUT** *header* ⓬ *of each preceding unit to the* **IN** *header of each subsequent unit using the sup-*

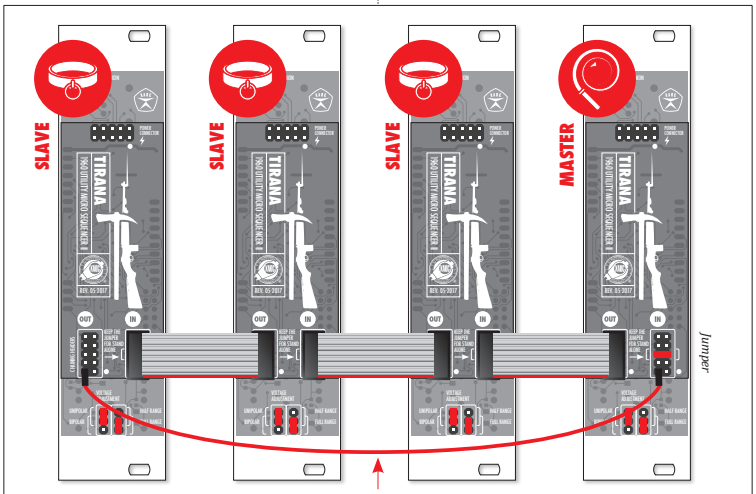


fig. 3

STEP MULTIPLICATION & DIVISION *fig. 4*

*Hold any step button for 2 seconds to enter the step editing menu. Slowly blinking step button (**2-4**) indicates step repeat. Fast blinking indicates step ratcheting.*

STEP 1 *blinking indicates that neither step repeat nor ratcheting has been set for the currently edited step.*

Press **STEP 1** *button to cancel multiplication/division on a given step. Tirana automatically exits the step editing menu after a choice is made.*

Press any of **STEP 2-4** *buttons to set a multiplication (step repeat) value. Tirana automatically exits the step editing menu after a choice is made.*

Hold any of **STEP 2-4** *buttons for 2 seconds to set a division (ratcheting) value. Tirana automatically exits the step editing menu after a choice is made.*

CLOCK DIVISION

Simultaneously hold **STEP 1+2** *buttons for 2 seconds to set a clock division by /2. The choice will be confirmed by a glimpse of all four buttons.*

Simultaneously hold **STEP 1+2+3** *buttons for 2 seconds to set a clock division per /3. The choice will be confirmed by a glimpse of all four buttons.*

Simultaneously hold **STEP 1+2+3+4** *buttons for 2 seconds to set a clock division per /4. The choice will be confirmed by a glimpse of all four buttons.*

To cancel the clock rate division, select any of the above combinations a second time. To make another choice, first cancel the previous one, then select a new choice.

GATE VS. TRIGGER

Simultaneously hold **STEP 1+4** *buttons for 2 secs to toggle between trigger and gate mode. The choice will be confirmed by a glimpse of all the buttons.*

plied 10-pin ribbon cable(s). **NOTE:** *Use only the master unit's sockets for patching.*

Older Tirana revisions can be chained to newer revisions as long as the rev. II unit is the master. To chain, first update the older unit(s) to the latest firmware, then, connect the units as shown in fig. 3 making sure to use the 1-pin stability loop cable that shipped with the original Tirana.

RESET BEHAVIOUR ADJUSTMENT

Tirana has four user-selectable latency values which can be adjusted to accommodate any timing inaccuracies between clock and reset impulses. To select a new value, first make sure the module is not chained with other Tiranas and disconnect the chaining cable (not the power cable) if necessary. Then, during system power up, hold the **STEP 1** *button to enter factory maintenance mode as indicated by all buttons slowly blinking. Next, select the* **STEP 1** *button for 0.35ms of latency;* **STEP 2** *button for 0.7ms;* **STEP 3** *button for 1.4ms (default);* **STEP 4** *for 2.8ms. Latency choice can be confirmed by a quick glimpse of the selected button. All settings are memorized and recalled after power reset.* •

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MADE IN THE EUROPEAN UNION

MAIN FEATURES

Four CV/gate steps

Per-step repetition or ratcheting

Per-step gate muting

Accepts clock rates up to 320Hz

On-board clock divider

Voltage controlled play direction, transposition, and reset

Unipolar and bipolar adjustable voltage range

Expandable by chaining more Tirana units

TECHNICAL DETAILS

Eurorack synth compatible

6hp, skiff friendly

Current draw: +30mA / –5mA

Reverse power protection